Http://www.mideaaircon.com

Service manual

Room airconditioner

Split Wall-Mounted Type



Applied to:

MSG-24CR; MSG-24HR

MSG-30CR; MSG-30HR

MSG-36CR; MSG-36HR

NOTE:

Before servicing the unit, please read this at first.
Always contact with your service center if meet problem.

Content

1. Precaution

1.1 Safety Precaution

n To prevent injury to the user or other people and property damage, the following instructions must be followed.

n Incorrect operation due to ignoring instruction will cause harm or damage.

n Before service unit, be sure to read this service manual at first.

1.2 Warning

Ø Installation

n Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.
There is risk of fire or electric shock.

n For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized service center.
Do not disassemble or repair the product, there is risk of fire or electric shock.

n Always ground the product.
There is risk of fire or electric shock.

n Install the panel and the cover of control box securely.
There is risk of fire of electric shock.

n Always install a dedicated circuit and breaker.
Improper wiring or installation may cause fore or electric shock.

n Use the correctly rated breaker of fuse.
There is risk of fire or electric shock.

n Do not modify or extend the power cable.
There is risk of fire or electric shock.

n Do not install, remove, or reinstall the unit by yourself (customer).
There is risk of fire, electric shock, explosion, or injury.

n Be caution when unpacking and installing the product.
Sharp edges could cause injury, be especially careful of the case edges and the fins on the condenser and evaporator.

n For installation, always contact the dealer or an Authorized service center.
There is risk of fire, electric shock, explosion, or injury.

n Do not install the product on a defective installation stand.
It may cause injury, accident, or damage to the product.

n Be sure the installation area does not deteriorate with age.
If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.

n Do not let the air conditioner run for a long time when the humidity is very high and a door or windows is left open.
Moisture may condense and wet or damage furniture.

n Take care to ensure that power cable could not be pulled out or damaged during operation.
There is risk of fire or electric shock.

n Do not place anything on the power cable.
There is risk of fire or electric shock.

n Do not plug or unplug the power supply plug during operation.
There is risk of fire or electric shock.

n Do not touch (operation) the product with wet hands.
There is risk of fire or electric shock.

n Do not place a heater or other appliance near the power cable.
There is risk of fire and electric shock.

n Do not allow water to run into electric parts.
It may cause fire, failure of the product, or electric shock.

n Do not store or use flammable gas or combustible near the product.
There is risk of fire or failure of product.

n Do not use the product in a tightly closed space for a long time.
Oxygen deficiency could occur.

n When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.
Do not use the telephone or turn switches on or off. There is risk of explosion or fire.

n If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.
There is risk of electric shock or fire.

n Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.
There is risk of property damage, failure of product, or electric shock.

n Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the

unit is so equipped.)

There is risk of physical injury, electric shock, or product failure.

- **When the product is soaked (flooded or submerged), contact an Authorized service center.**
  There is risk of fire or electric shock.
- **Be caution that water could not enter the product.**
  There is risk of fire, electric shock, or product damage.
- **Ventilate the product from time to time when operating it together with a stove, etc.**
  There is risk of fire or electric shock.
- **Turn the main power off when cleaning or maintaining the product.**
  There is risk of electric shock.
- **When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.**
  There is risk of product damage or failure, or unintended operation.
- **Take care to ensure that nobody could step on or fall onto the outdoor unit.**
  This could result in personal injury and product damage.

Ø CAUTION

- **Always check for gas (refrigerant) leakage after installation or repair of product.**
  Low refrigerant levels may cause failure of product.
- **Install the drain hose to ensure that water is drained away properly.**
  A bad connection may cause water leakage.
- **Keep level even when installing the product.**
  To avoid vibration of water leakage.
- **Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.**
  It may cause a problem for your neighbors.
- **Use two or more people to lift and transport the product.**
  Avoid personal injury.
- **Do not install the product where it will be exposed to sea wind (salt spray) directly.**
  It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

Ø Operational

- **Do not expose the skin directly to cool air for long periods of time. (Do not sit in the draft).**
  This could harm to your health.
- **Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigerant system.**
  There is risk of damage or loss of property.
- **Do not block the inlet or outlet of air flow.**
  It may cause product failure.
- **Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.**
  There is risk of fire, electric shock, or damage to the plastic parts of the product.
- **Do not touch the metal parts of the product when removing the air filter. They are very sharp.**
  There is risk of personal injury.
- **Do not step on pr put anything on the product. (outdoor units)**
  There is risk of personal injury and failure of product.
- **Always insert the filter securely. Clean the filter every two weeks or more often if necessary.**
  A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.
- **Do not insert hands or other object through air inlet or outlet while the product is operated.**
  There are sharp and moving parts that could cause personal injury.
- **Do not drink the water drained from the product.**
  It is not sanitary could cause serious health issues.
- **Use a firm stool or ladder when cleaning or maintaining the product.**
  Be careful and avoid personal injury.
- **Replace the all batteries in the remote control with new ones of the same type. Do not mix old and mew batteries or different types of batteries.**
  There is risk of fire or explosion.
- **Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.**
  They may burn of explode.
- **If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote of the batteries have leaked.**
  The chemical in batteries could cause burns or other health hazards.

2. Function

Indoor unit

- **Operation ON/OFF by remote controller**
- **Sensing by room temperature**
  Room temperature sensor.
  Pipe temperature sensor.
- **Room temperature control**
  Maintain the room temperature in accordance with the setting temperature.
- **Starting temperature control**
  Indoor fan is delayed for 5 sec at the starting.
- **Time Delay Safety control**
  Restarting is for approx. 3 minutes..
- **Indoor fan speed control**
  High, med, low, breeze.
- **Operation indication Lamps (LED)**
  Light up in the LED (LCD) for each operation mode.
- **Two-direction air vane**
  The unit will decide the louver direction according to operation mode.
- **Sleep mode auto control**
  The fan is turn to low speed (cooling/heating).
  The unit will be turn off after seven hours.
- **Independent dehumidification**
  The function is usually used in rainy days in springtime or damp areas.
- **Self-diag. function**
  The function will be operate in any operation mode.
- **Air flow Direction control**
  The louver can be set at the desired position or swing up and down automatically
- **Auto mode**
  The unit can be change by the room temperature.
- **Anti-cold function**
  Prevent the cold wind at the beginning of unit start.
- **Temp. Compensation**
- **Defrost mode**
- **Auto-restart function**
- **Flexible wiring connection**
- **Easy clean panel**

Outdoor unit

Power relay control

The unit has 3 mins delay between continuously ON/OFF operations.

Low ambient kit

The unit can operate in cooling mode at low ambient temperature conditions.

Low noise air flow system

Bird tail propeller fan makes the outdoor unit run more quietly.

Hydrophilic aluminum fin

The hydrophilic fin can improve the heating efficiency at operation mode.

4 way valve control

It is only operated in the heating operation mode except defrosting operation.

Discharge pipe temperature protect

Anti-rust cabinet

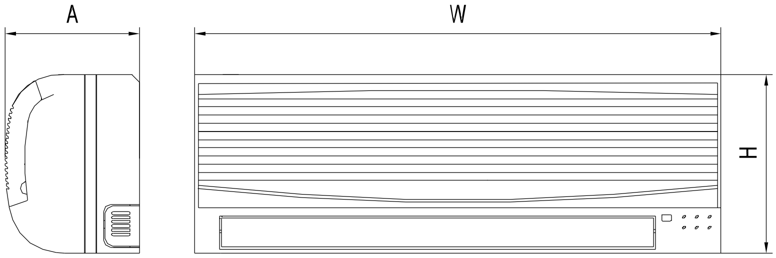
Made from electrolytic zinc steel sheet and anti-rust coated components.

Valve protection cover

It protects the valves and prevents water from dripping.

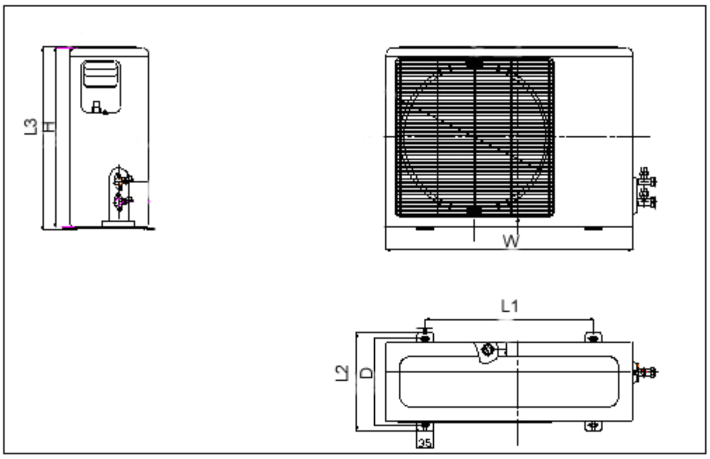
3. Dimension

3.1 Indoor unit



Dimension / Mode	W	H	L
24K	1080	330	222
30K	1080	330	222
36K	1250	325	230

3.2 Outdoor unit



Dimension / Mode	W	H	D	L1	L2	L3
24K	845	695	335	560	360	735
30K	845	695	335	560	360	735
36K	895	860	302	560	360	735

4. Specification

Model			MSG-24CR	MSG-24HR
Power supply		**Ph-V-Hz**	1, 220-240V~,50Hz	1, 220-240V~,50Hz
Cooling	Capacity	Btu/h	24000	24000
	Input	W	2750	2750
	Rated current	A	12.5	12.5
	EER	Btu/w.h	8.7, 2.6	8.7, 2.6
Heating	Capacity	Btu/h	-----	27000
	Input	W	-----	2750
	Rated current	A	-----	12.5
	COP	W/W	-----	2.9
Max. current		A	16	16
Starting current		A	50	50
Compressor	Model		QP407PT24C	QP407PT24C
	Type		Rotary	Rotary
	Brand		LG	LG
	Capacity	Btu/h	23400	23400
	Input	W	2317	2317
	Rated current(RLA)	A	10.1	10.1
	Locked rotor Amp(LRA)	A	54	54
	Thermal protector		Internal	Internal
	Capacitor	uF	45	45
	Refrigerant oil	ml	650	650
Indoor fan motor	Model		YDK36-4G	YDK36-4G
	Brand		Welling	Welling
	Input	W	65/63/60	65/63/60
	Capacitor	uF	2μ F/450V	2μ F/450V
	Speed(hi/mi/lo)	r/min	1050/950/850	1050/950/850
Indoor air flow (Hi/Mi/Lo)		m3/h	1050/950/850	1050/950/850
Indoor noise level (Hi/Mi/Lo)		dB(A)	43/40/37	43/40/37
Outdoor fan motor	Model		YDK53-6K	YDK53-6K
	Brand		Welling	Welling
	Input	W	130	130
	Capacitor	uF	3.5	3.5
	Speed	r/min	800	800
Outdoor air flow		m^3/h	2500	2500
Outdoor noise level		dB(A)	≤ 56	≤ 56
Refrigerant type R410A		g	R22/1850	R22/1900
Design pressure		MPa	2.6	2.6
Refrigerant piping	Liquid side/ Gas side	mm	Φ 9.53/Φ 16.0	Φ 9.53/Φ 16.0
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	10	10
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7 - 45
Application area		m^2	40~56	40~56

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

The above design and specifications are subject to change without prior notice for product improvement.

Model			MSG-30CR	MSG-30HR
Power supply		**Ph-V-Hz**	1, 220-240V~,50Hz	1, 220-240V~,50Hz
Cooling	Capacity	Btu/h	28000	28000
	Input	W	3200	3200
	Rated current	A	15	15
	EER	Btu/w.h	8.8	8.8
Heating	Capacity	Btu/h	-----	30000
	Input	W	-----	3100
	Rated current	A	-----	14.5
	COP	W/W	-----	9.7
Max. current		A	20	20
Starting current		A	76	76
Compressor	Model		ZR34KH-PFJ-522	ZR34KH-PFJ-522
	Type		Scroll	Scroll
	Brand		Copeland	Copeland
	Capacity	Btu/h	28800	28800
	Input	W	2520	2520
	Rated current(RLA)	A	12.1	12.1
	Locked rotor Amp(LRA)	A	76	76
	Thermal protector		Internal	Internal
	Capacitor	uF	50	50
	Refrigerant oil	ml	1242	1242
Indoor fan motor	Model		YDK36-4G	YDK36-4G
	Brand		Welling	Welling
	Input	W	68/65/62	68/65/62
	Capacitor	uF	3μ F/450V	3μ F/450V
	Speed(hi/mi/lo)	r/min	1150/1050/950	1150/1050/950
Indoor air flow (Hi/Mi/Lo)		m3/h	1150/1050/950	1150/1050/950
Indoor noise level (Hi/Mi/Lo)		dB(A)	47/44/41	47/44/41
Outdoor fan motor	Model		YDK53-6K	YDK53-6K
	Brand		Welling	Welling
	Input	W	140	140
	Capacitor	uF	3.5	3.5
	Speed	r/min	800	800
Outdoor air flow		m^3/h	2500	2500
Outdoor noise level		dB(A)	≤ 58	≤ 58
Refrigerant type R410A		g	R22/2250	R22/2450
Design pressure		MPa	2.6	2.6
Refrigerant piping	Liquid side/ Gas side	mm	Φ 9.53/Φ 16.0	Φ 9.53/Φ 16.0
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	10	10
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7 - 45
Application area		m^2	50~68	50~68

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

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Model			MSG-36CR	MSG-36HR
Power supply		**Ph-V-Hz**	1, 220-240V~, 50Hz	1, 220-240V~, 50Hz
Cooling	Capacity	Btu/h	35000	35000
	Input	W	4120	4120
	Rated current	A	18.6	18.6
	EER	Btu/w.h	8.5	8.5
Heating	Capacity	Btu/h	-----	38000
	Input	W	-----	4100
	Rated current	A	-----	18.5
	COP	W/W	-----	9.3
Max. current		A	32	32
Starting current		A	150	150
Compressor	Model		ZR47K3-PFJ-522	ZR47K3-PFJ-522
	Type		SCROLL	SCROLL
	Brand		COPELAND	COPELAND
	Capacity	Btu/h	39000	39000
	Input	W	3510	3510
	Rated current(RLA)	A	19.3	19.3
	Locked rotor Amp(LRA)	A	114	114
	Thermal protector		15HM1637	15HM1637
	Capacitor	uF	60uF/≥ 400VAC	60uF/≥ 400VAC
	Refrigerant oil	ml	1240	1240
Indoor fan motor	Model		YDK50-4E	YDK50-4E
	Brand		Welling	Welling
	Input	W	85/80/77	85/80/77
	Capacitor	uF	3	3
	Speed(hi/mi/lo)	r/min	1260/1150/990	1260/1150/990
Indoor air flow (Hi/Mi/Lo)		m3/h	1350/1200/1050	1350/1200/1050
Indoor noise level (Hi/Mi/Lo)		dB(A)	49/46/42	49/46/42
Outdoor fan motor	Model		YDK100-6	YDK100-6
	Brand		Welling	Welling
	Input	W	169	169
	Capacitor	uF	5	5
	Speed	r/min	900	900
Outdoor air flow		m^3/h	3000	3000
Outdoor noise level		dB(A)	59	59
Refrigerant type R410A		g	2400	2450
Design pressure		MPa	2.6	2.6
Refrigerant piping	Liquid side/ Gas side	mm	Φ 9.52/Φ 16	Φ 9.52/Φ 16
	Max. refrigerant pipe length	m	25	25
	Max. difference in level	m	10	10
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7 - 45
Application area		m^2	60~78	60~78

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

The above design and specifications are subject to change without prior notice for product improvement.

Model			MSG-30CR	MSG-30HR
Power supply		**Ph-V-Hz**	3Ph,380-420V,50Hz	3Ph,380-420V,50Hz
Cooling	Capacity	Btu/h	28000	28000
	Input	W	3000	3000
	Rated current	A	5.3	5.3
	EER	Btu/w.h	9.3	9.3
Heating	Capacity	Btu/h	-----	32000
	Input	W	-----	3000
	Rated current	A	-----	5.3
	COP	W/W	-----	10.7
Max. current		A	7	7
Starting current		A	40	40
Compressor	Model		ZR34KH-TFD-522	ZR34KH-TFD-522
	Type		Scroll	Scroll
	Brand		Copeland	Copeland
	Capacity	Btu/h	28000	28000
	Input	W	2480	2480
	Rated current(RLA)	A	4.6	4.6
	Locked rotor Amp(LRA)	A	40	40
	Thermal protector		Internal	Internal
	Capacitor	uF	-----	-----
	Refrigerant oil	ml	1242	1242
Indoor fan motor	Model		YDK36-4G	YDK36-4G
	Brand		Welling	Welling
	Input	W	72/67/63	72/67/63
	Capacitor	uF	3μ F/450V	3μ F/450V
	Speed(hi/mi/lo)	r/min	1150/1060/960	1150/1060/960
Indoor air flow (Hi/Mi/Lo)		m3/h	1150/1050/950	1150/1050/950
Indoor noise level (Hi/Mi/Lo)		dB(A)	47/44/41	47/44/41
Outdoor fan motor	Model		YDK53-6K	YDK53-6K
	Brand		Welling	Welling
	Input	W	140	140
	Capacitor	uF	3.5	3.5
	Speed	r/min	800	800
Outdoor air flow		m^3/h	2500	2500
Outdoor noise level		dB(A)	≤ 58	≤ 58
Refrigerant type R410A		g	R22/2250	R22/2450
Design pressure		MPa	2.6	2.6
Refrigerant piping	Liquid side/ Gas side	mm	Φ 9.53/Φ 16.0	Φ 9.53/Φ 16.0
	Max. refrigerant pipe length	m	20	20
	Max. difference in level	m	10	10
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7 - 45
Application area		m^2	50~68	50~68

Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

The above design and specifications are subject to change without prior notice for product improvement.

Model			MSG-36CR	MSG-36HR
Power supply		**Ph-V-Hz**	3, 380-420V~, 50Hz	3, 380-420V~, 50Hz
Cooling	Capacity	Btu/h	35000	35000
	Input	W	4120	4120
	Rated current	A	6.5	6.5
	EER	Btu/w.h	8.5	8.5
Heating	Capacity	Btu/h	-----	38000
	Input	W	-----	4100
	Rated current	A	-----	6.4
	COP	W/W	-----	9.3
Max. current		A	11	11
Starting current		A	48	48
Compressor	Model		ZR34KH-TFD-522	ZR34KH-TFD-522
	Type		Scroll	Scroll
	Brand		Copeland	Copeland
	Capacity	Btu/h	39000	39000
	Input	W	3480	3480
	Rated current(RLA)	A	6.3	6.3
	Locked rotor Amp(LRA)	A	43/48	43/48
	Thermal protector		34HM224	34HM224
	Capacitor	uF	-----	-----
	Refrigerant oil	ml	SONTEX 200LT 1242	SONTEX 200LT 1242
Indoor fan motor	Model		YDK50-4E	YDK50-4E
	Brand		Welling	Welling
	Input	W	85/80/77	85/80/77
	Capacitor	uF	3	3
	Speed(hi/mi/lo)	r/min	1260/1150/990	1260/1150/990
Indoor air flow (Hi/Mi/Lo)		m3/h	1350/1200/1050	1350/1200/1050
Indoor noise level (Hi/Mi/Lo)		dB(A)	49/46/42	49/46/42
Outdoor fan motor	Model		YDK100-6	YDK100-6
	Brand		Welling	Welling
	Input	W	169	169
	Capacitor	uF	5	5
	Speed	r/min	900	900
Outdoor air flow		m^3/h	3000	3000
Outdoor noise level		dB(A)	59	59
Refrigerant type R410A		g	2400	2450
Design pressure		MPa	2.6	2.6
Refrigerant piping	Liquid side/ Gas side	mm	Φ9.52/Φ16	Φ9.52/Φ16
	Max. refrigerant pipe length	m	25	25
	Max. difference in level	m	10	10
Operation temp		℃	17-30	17-30
Ambient temp		℃	18-45	-7 - 45
Application area		m^2	60~78	60~78

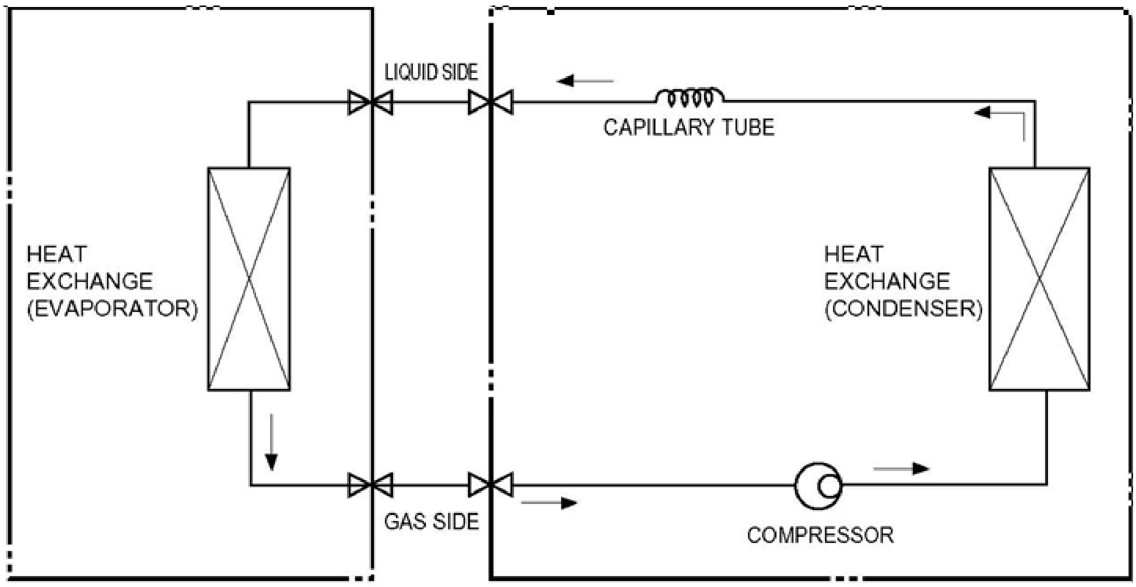
Note:

The noise date is base on hemi-anechoic chamber, during actual operation; these values are normally somewhat different as a result of ambient condition.

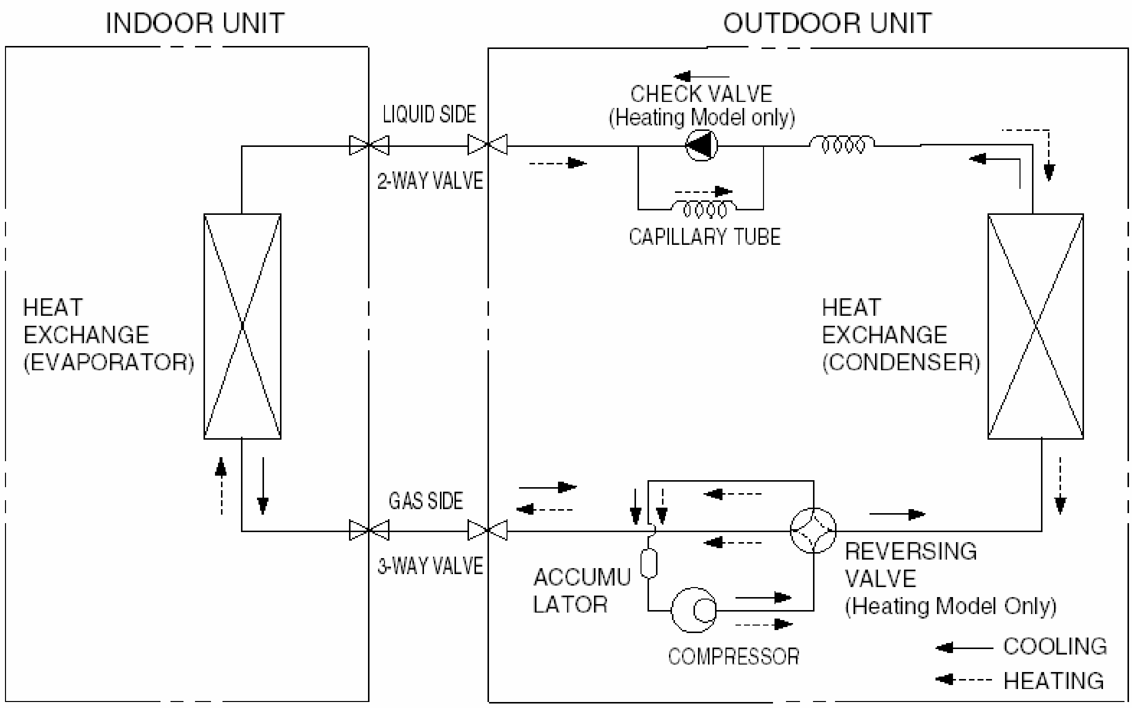
The above design and specifications are subject to change without prior notice for product improvement.

5. Refrigerant cycle diagram

Ø Cooling only



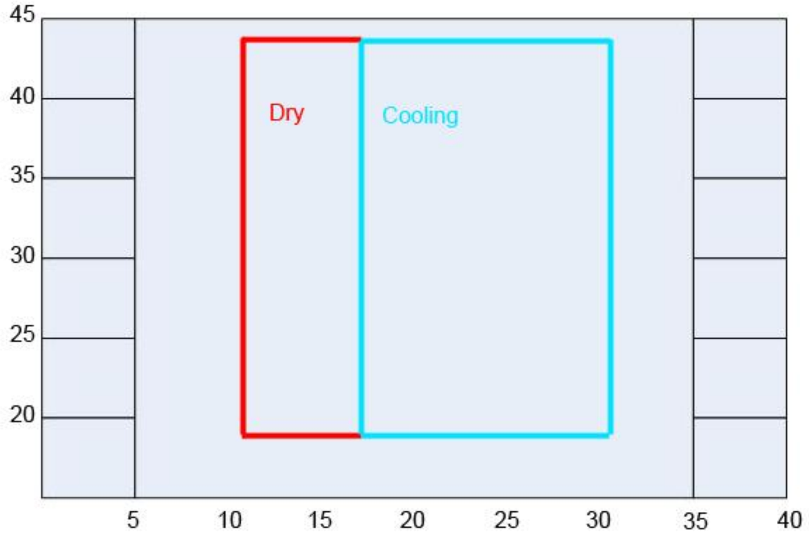
Ø Heat pump mode



6. Operation limits

6.1 Cooling operation

Outdoor unit air temp.℃ DB

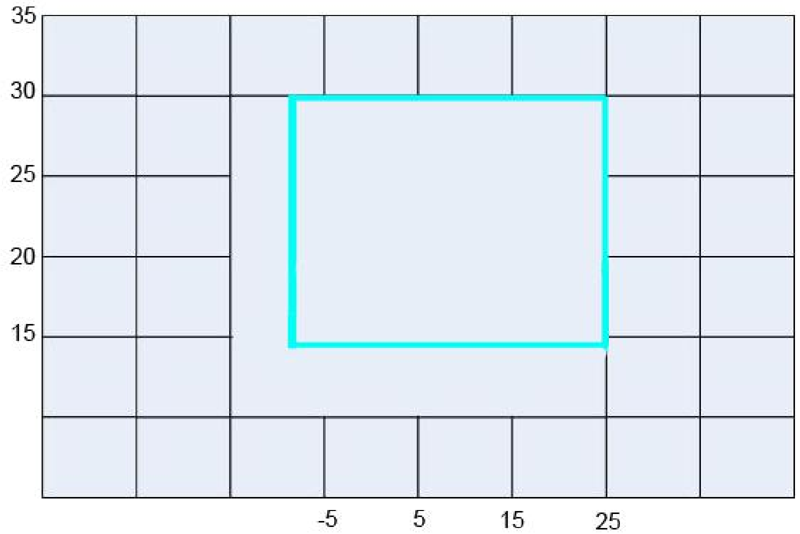


Indoor air temp. ℃ DB

Note: The chart is the result from the continuous operation under constant air temperature conditions. However, excludes the initial pull-down stage.

6.2 Heating operation

Indoor air temp. ℃ DB



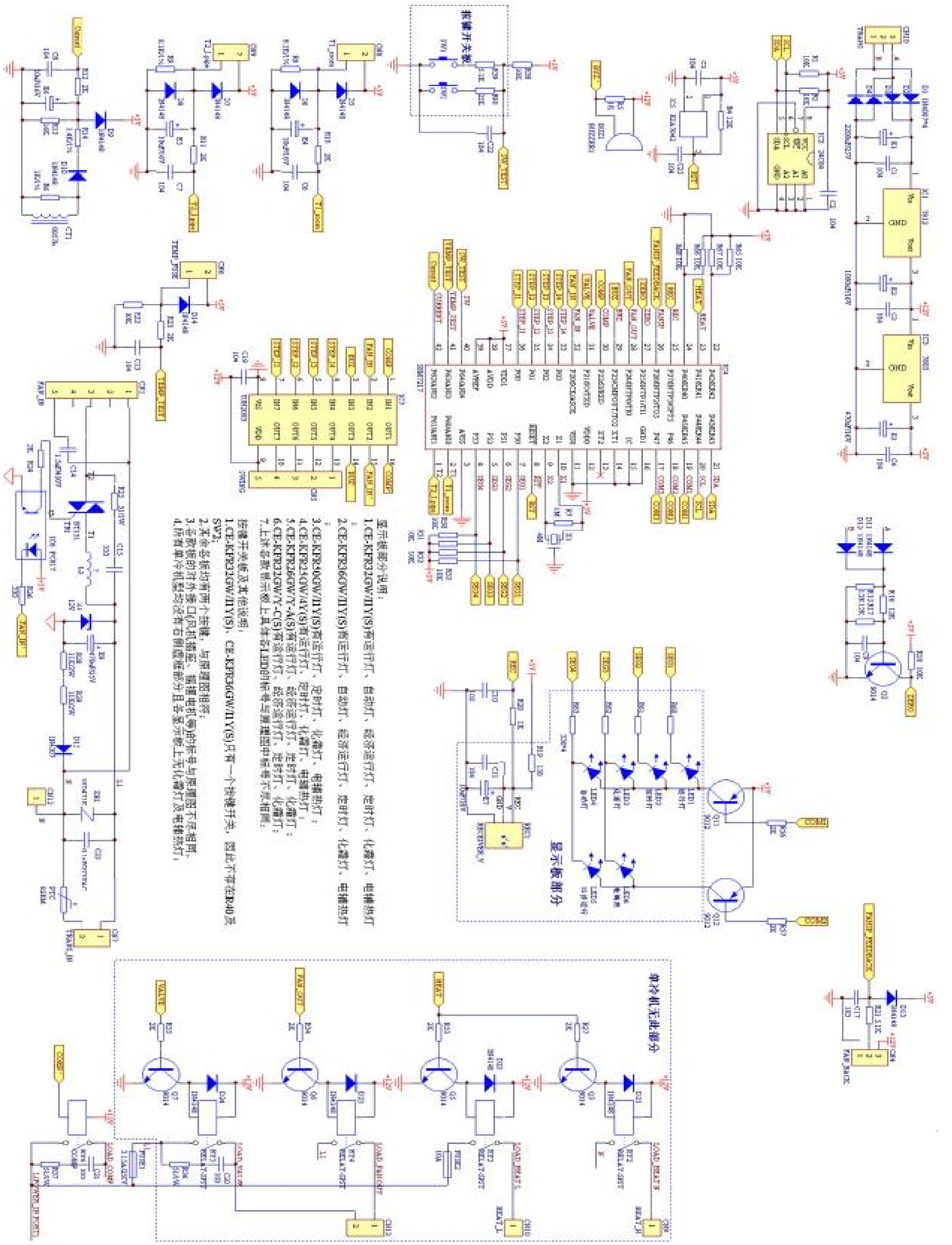
Outdoor unit air temp.℃ DB

Note: The chart is the result from the continuous operation under constant air temperature conditions.

However, excludes the initial pull-down stage.

7. Schematic diagram and Wiring diagram

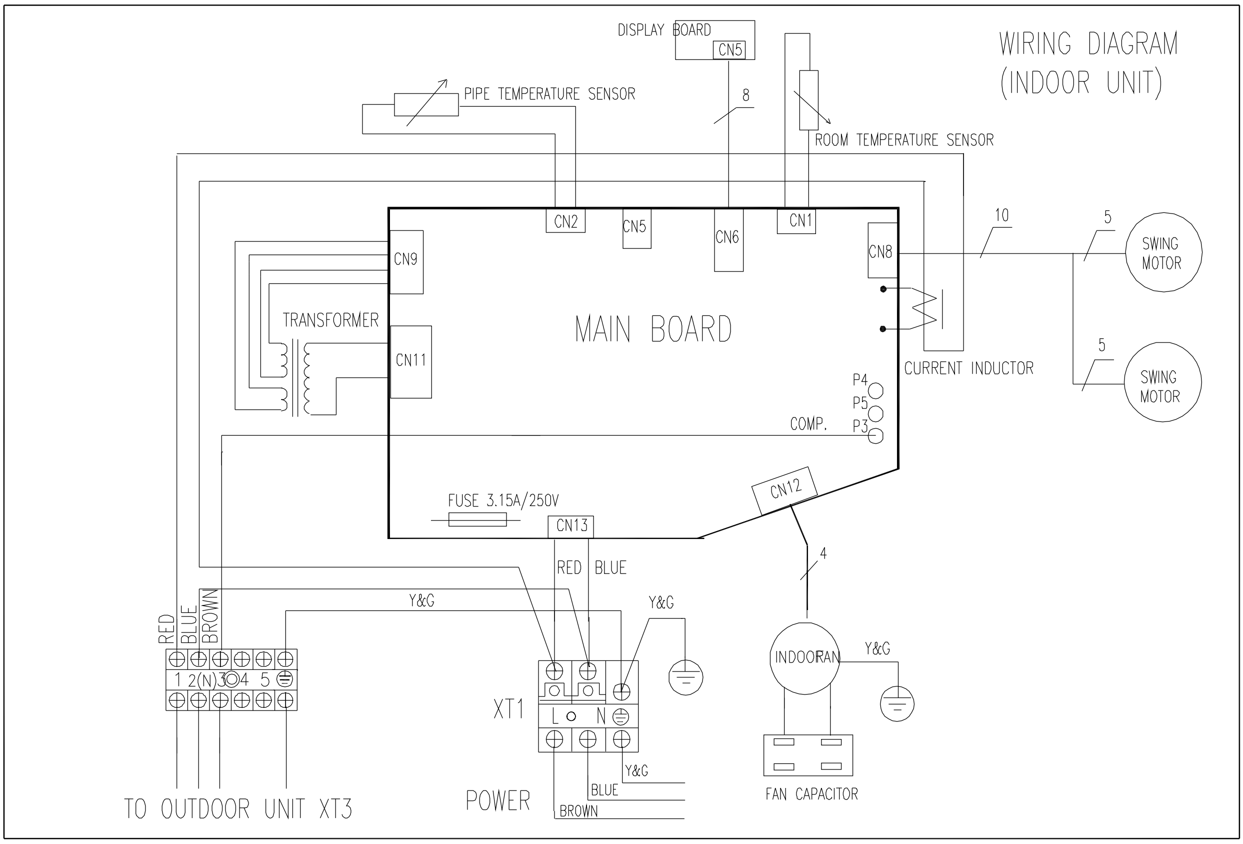
7.1 Schematic diagram

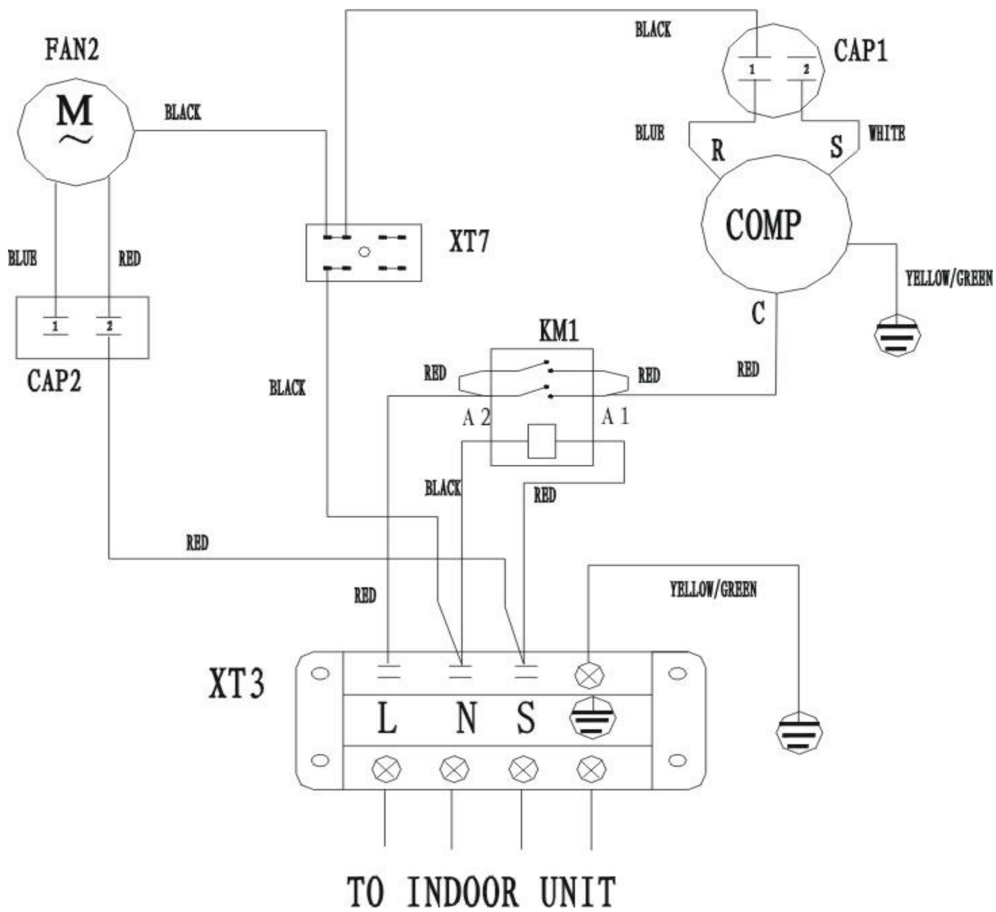


7.2 Wiring diagram

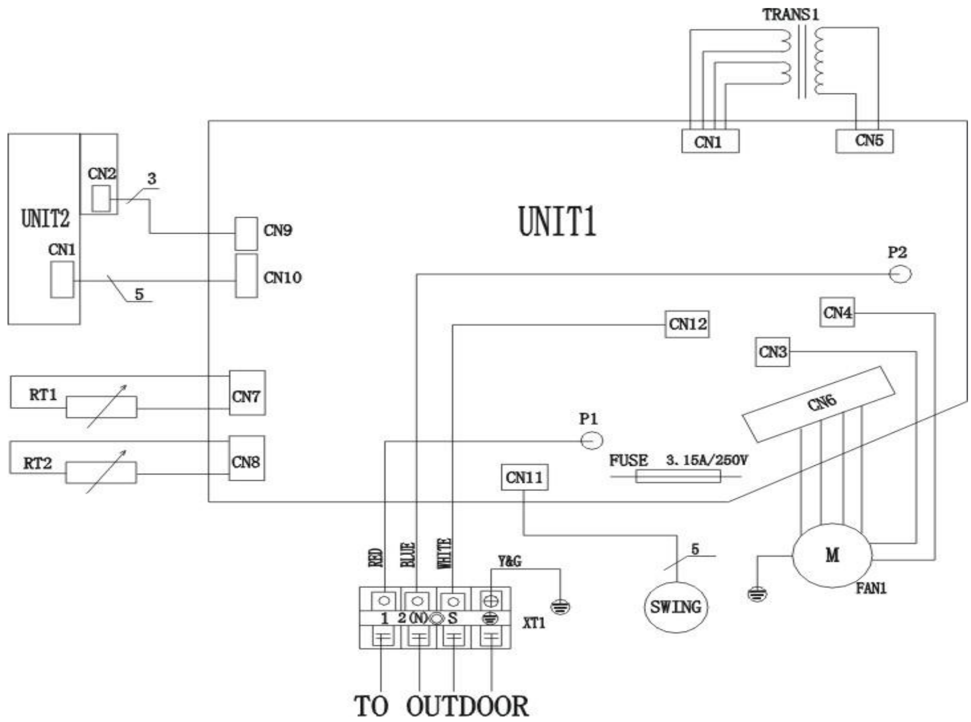
7.2.1 Cooling mode

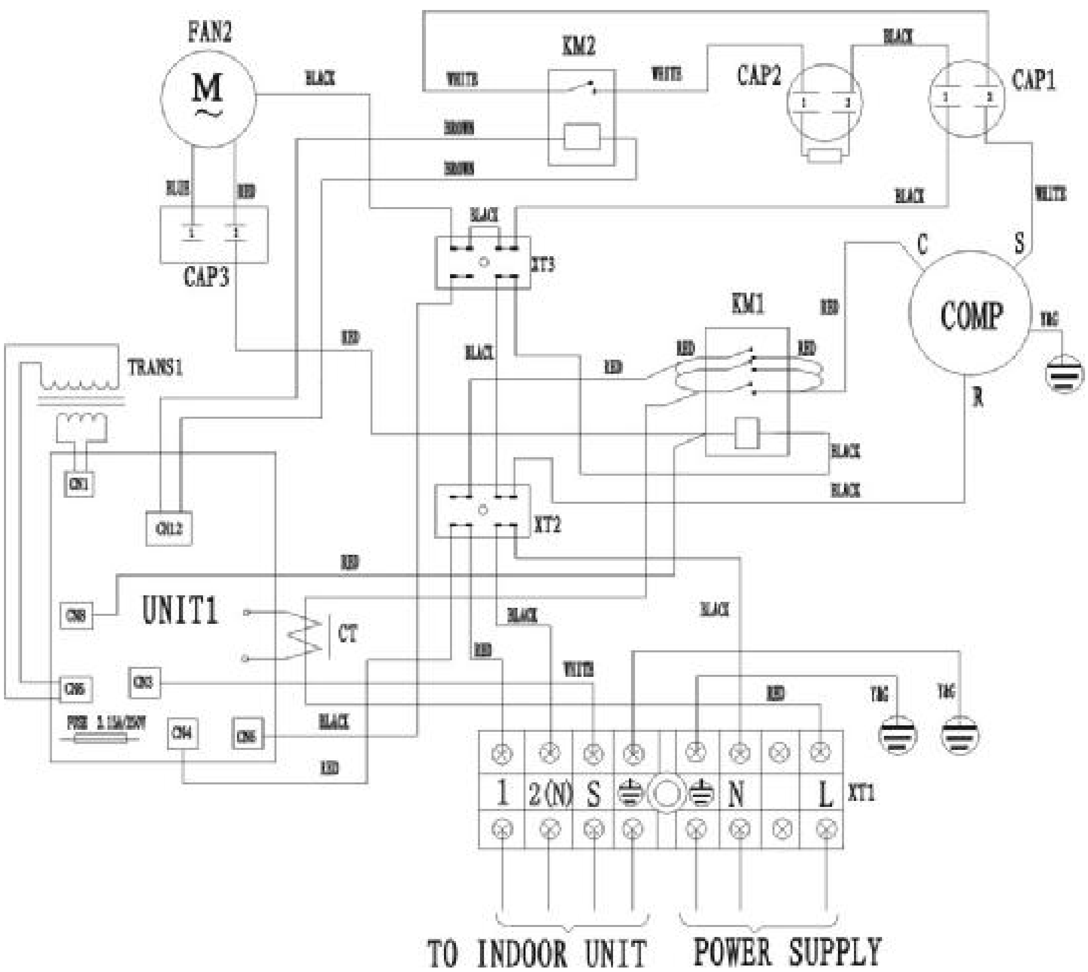
MSG-24CR, MSG-30CR





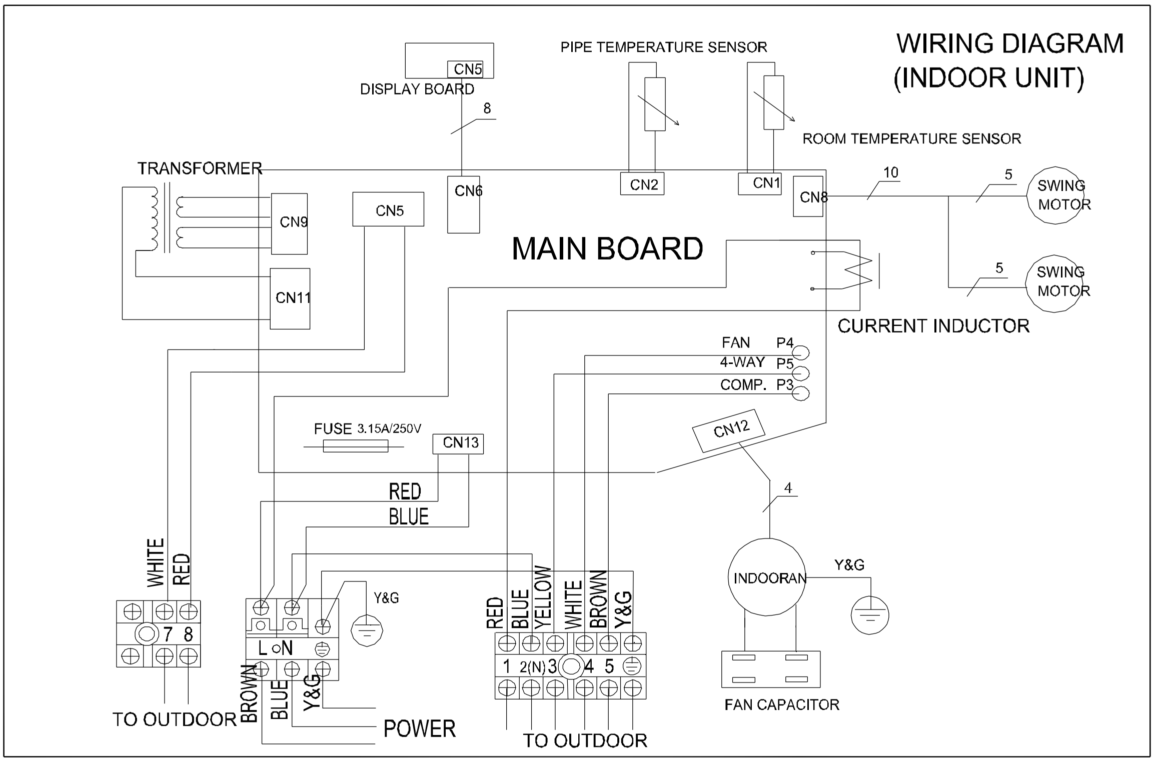
MSG-36CR

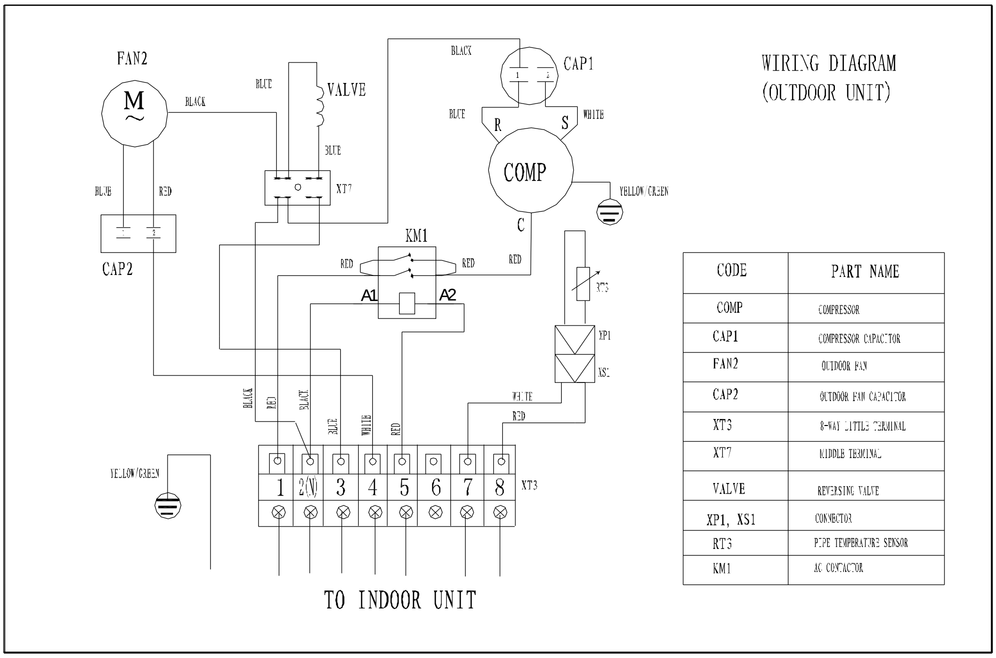

TRANS1
CN1
CN5
UNIT2
CN2
3
CN1
5
CN9
CN10
UNIT1
P2
CN12
CN4
CN3
RT1
CN7
CN6
P1
RT2
CN8
FUSE 3.15A/250V
CN11
RED
BLUE
WHITE
Y&G
5
M
FAN1
SWING
1 2(N) S
XT1
TO OUTDOOR


FAN2
KM2
CAP2
CAP1
CAP3
XT3
KM1
COMP
C
S
R
TRANS1
XT2
UNIT1
CT
1 2(N) S N L
XT1
TO INDOOR UNIT
POWER SUPPLY

7.2.2 Heating mode

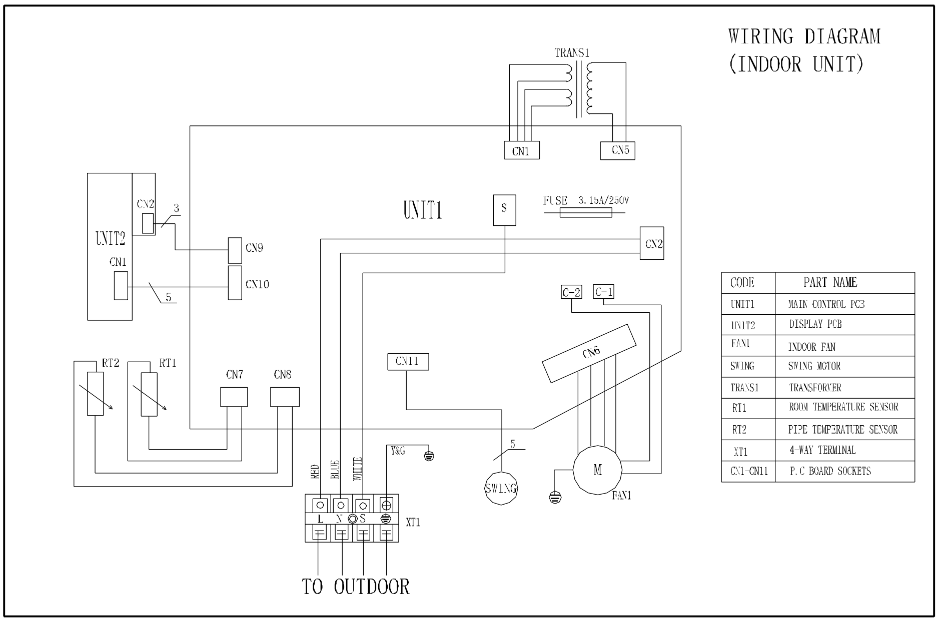
MSG-24HR, MSG-30HR



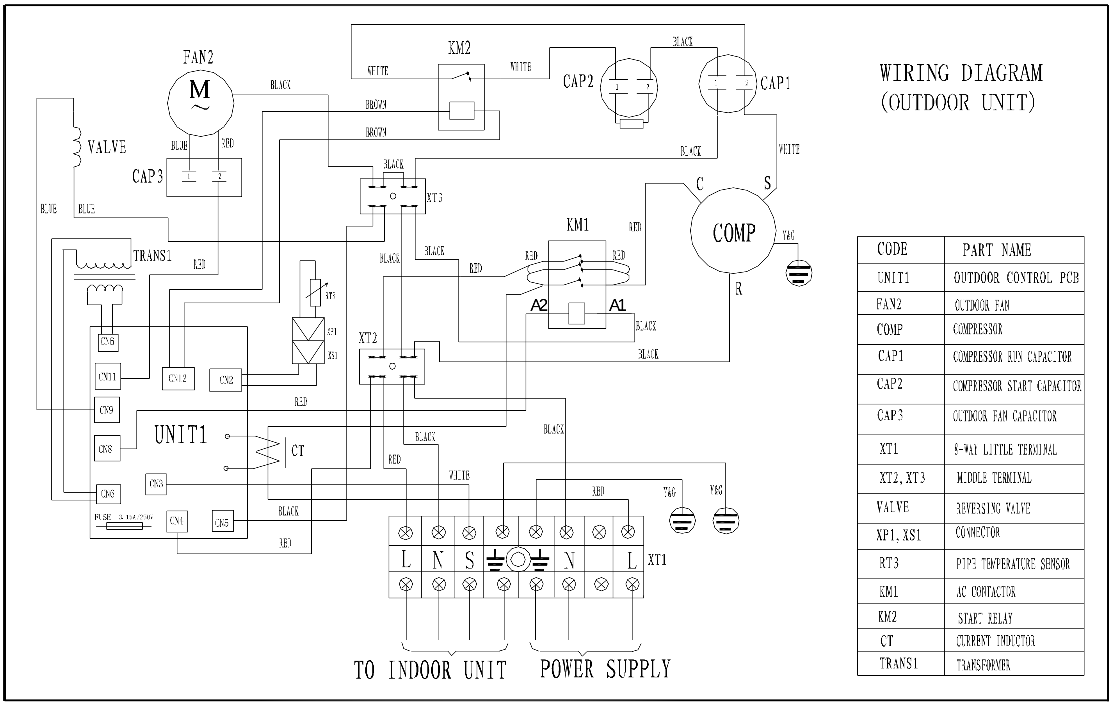


CODE	PART NAME
COMP	COMPRESSOR
CAP1	COMPRESSOR CAPACITOR
FAN2	OUTDOOR FAN
CAP2	OUTDOOR FAN CAPACITOR
XT3	8-WAY LITTLE TERMINAL
XT7	MIDDLE TERMINAL
VALVE	REVERSING VALVE
XP1, XS1	CONNECTOR
RT3	PIPE TEMPERATURE SENSOR
KM1	AC CONTACTOR

MSG-36HR



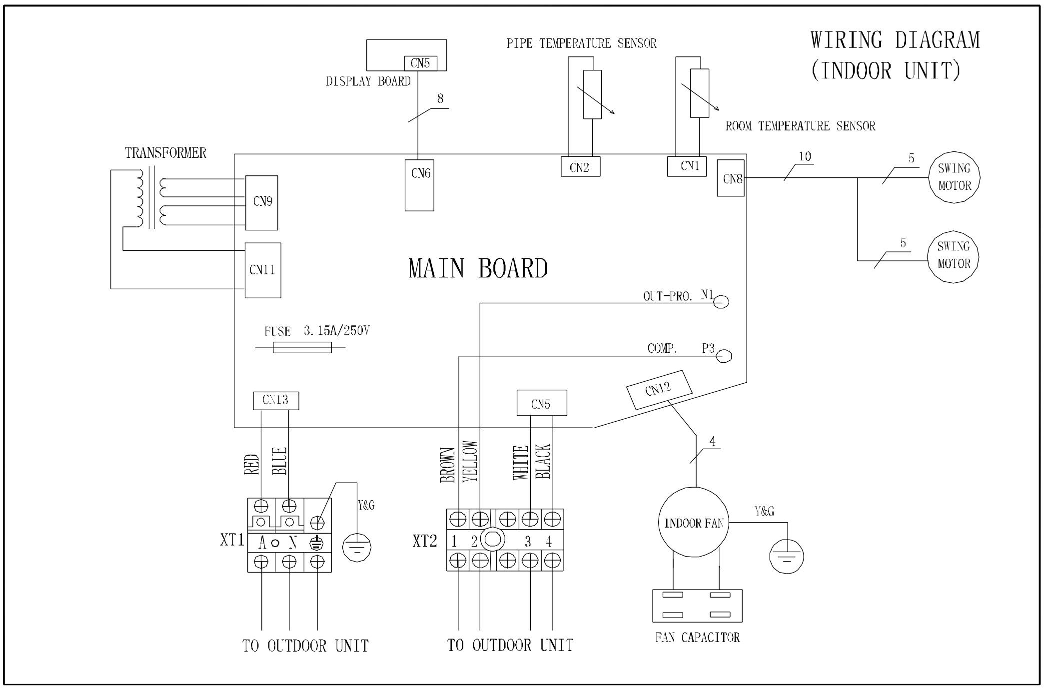
CODE	PART NAME
UNIT1	MAIN CONTROL PC3
UNIT2	DISPLAY PCB
FAN1	INDOOR FAN
SWING	SWING MOTOR
TRANS1	TRANSFORVER
RT1	ROOM TEMPERATURE SENSOR
RT2	PIPE TEMPERATURE SENSOR
XT1	4-WAY TERMINAL
CN1-CN11	P.C BOARD SOCKETS

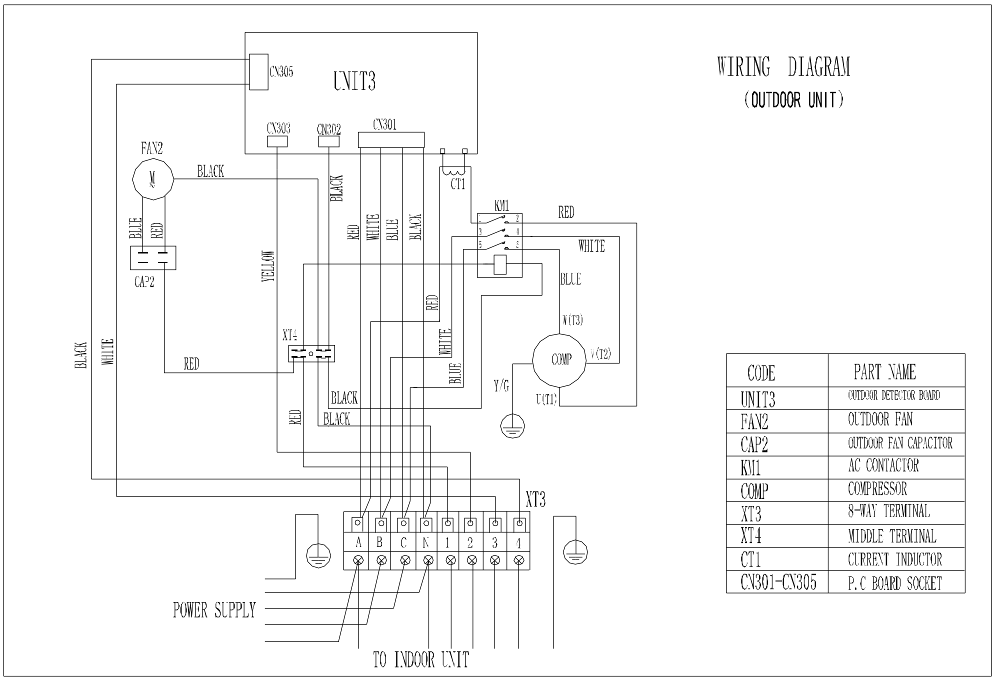


CODE	PART NAME
UNIT1	OUTDOOR CONTROL PCB
FAN2	OUTDOOR FAN
COMP	COMPRESSOR
CAP1	COMPRESSOR RUN CAPACITOR
CAP2	COMPRESSOR START CAPACITOR
CAP3	OUTDOOR FAN CAPACITOR
XT1	8-WAY LITTLE TERMINAL
XT2, XT3	MIDDLE TERMINAL
VALVE	REVERSING VALVE
XP1, XS1	CONNECTOR
RT3	PIPE TEMPERATURE SENSOR
KM1	AC CONTACTOR
KM2	START RELAY
CT	CURRENT INDUCTOR
TRANS1	TRANSFORMER

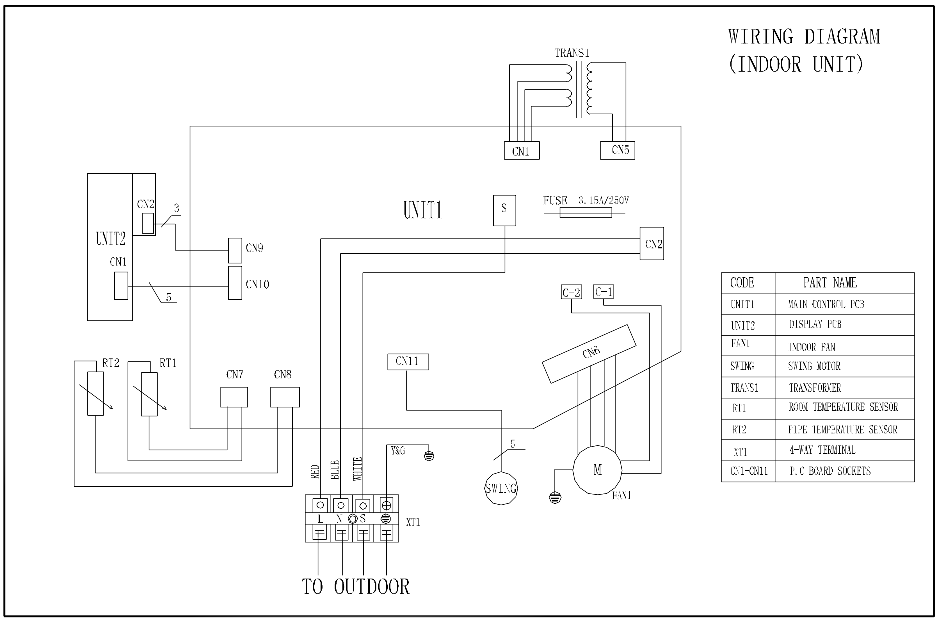
7.2.3 Cooling mode (3 Ph)

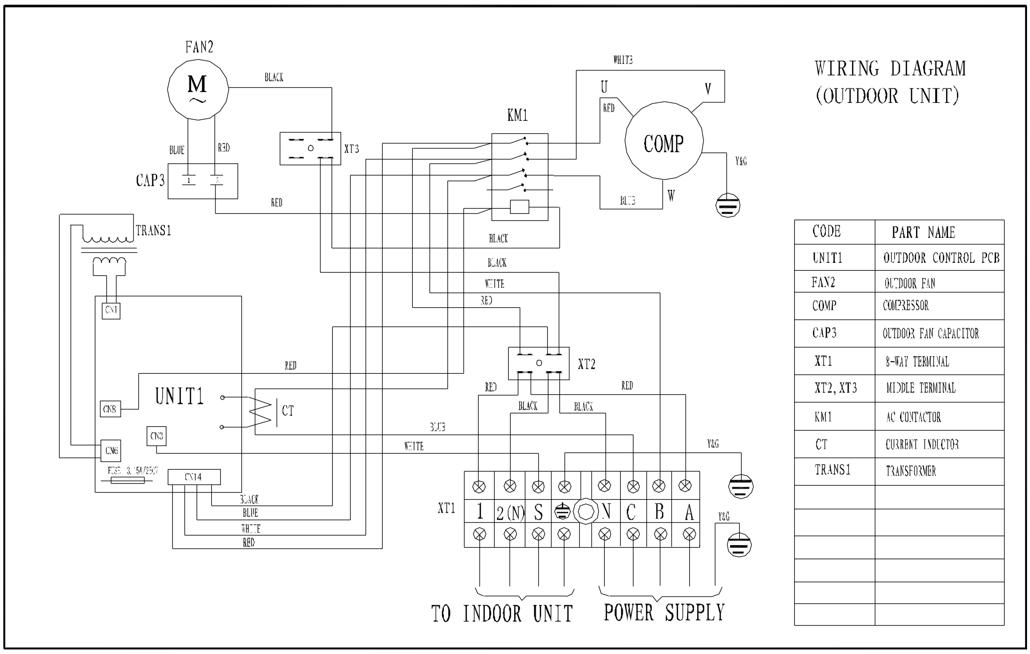
MSG-30CR (3ph)





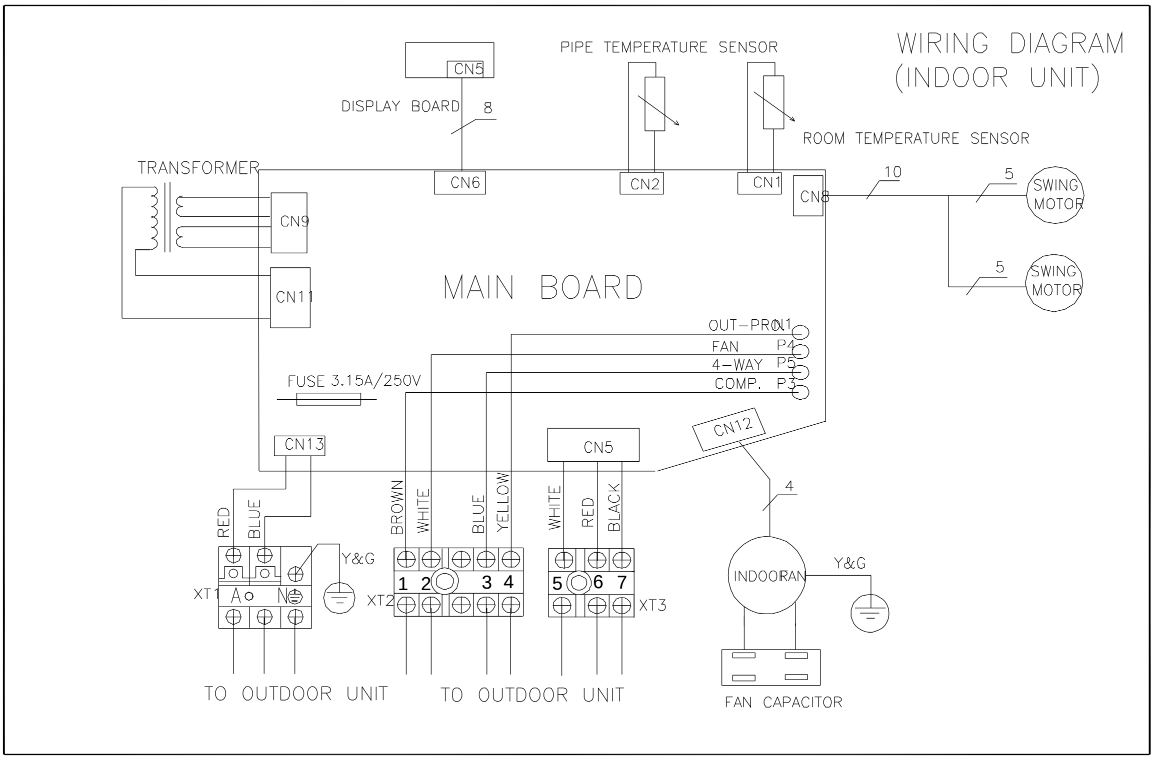
MSG-36CR (3ph)

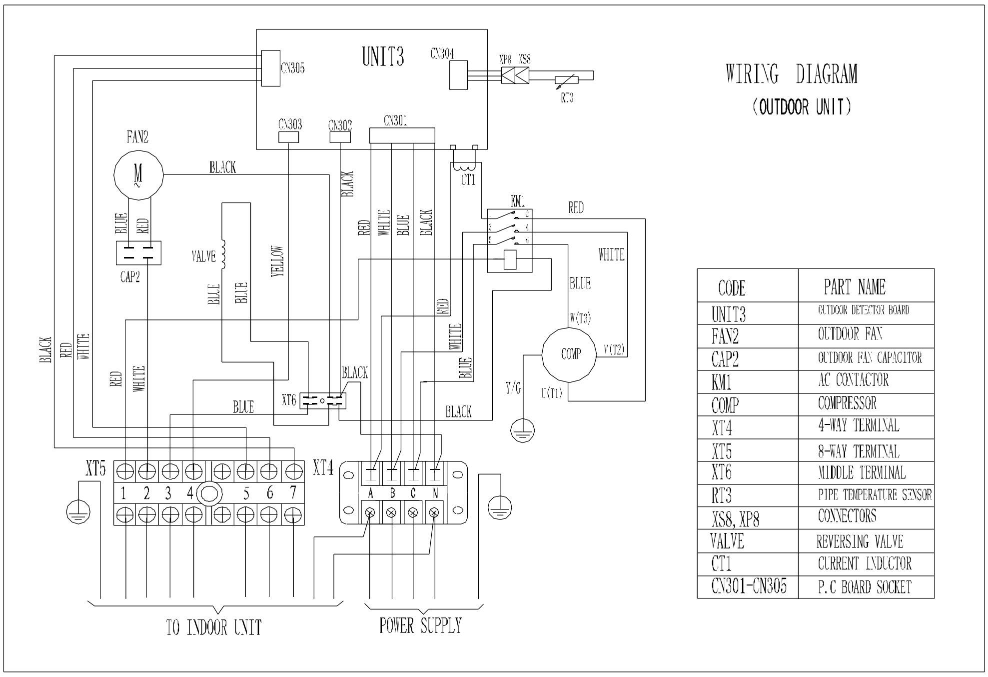

WIRING DIAGRAM
(INDOOR UNIT)
TRANS1
CN1
CN5
UNIT1
S
FUSE 3.15A/250V
CN2
UNIT2
CN2
CN1
CN9
CN10
C 2
C-1
CN6
RT2
RT1
CN7
CN8
CN11
RED
BLUE
WHITE
Y&G
SWING
M
FAN1
XT1
L
S
TO OUTDOOR
CODE
PART NAME
UNIT1
MAIN CONTROL PCB
UNIT2
DISPLAY PCB
FAN1
INDOOR FAN
SWING
SWING MOTOR
TRANS1
TRANSFORMER
RT1
ROOM TEMPERATURE SENSOR
RT2
PIPE TEMPERATURE SENSOR
XT1
4-WAY TERMINAL
CN1-CN11
P.C BOARD SOCKETS


FAN2
M
BLACK
WHITE
WIRING DIAGRAM
(OUTDOOR UNIT)
U
V
W
KM1
COMP
XT3
CAP3
BLUE
RED
Y&G
TRANS1
CN1
UNIT1
CT
XT2
BLACK
WHITE
CN14
XT1
1
2(N)
S
N
C
B
A
TO INDOOR UNIT
POWER SUPPLY
CODE
PART NAME
UNIT1
OUTDOOR CONTROL PCB
FAN2
OUTDOOR FAN
COMP
COMPRESSOR
CAP3
OUTDOOR FAN CAPACITOR
XT1
8-WAY TERMINAL
XT2, XT3
MIDDLE TERMINAL
KM1
AC CONTACTOR
CT
CURRENT INDUCTOR
TRANS1
TRANSFORMER

7.2.4 Heating mode (3 Ph)

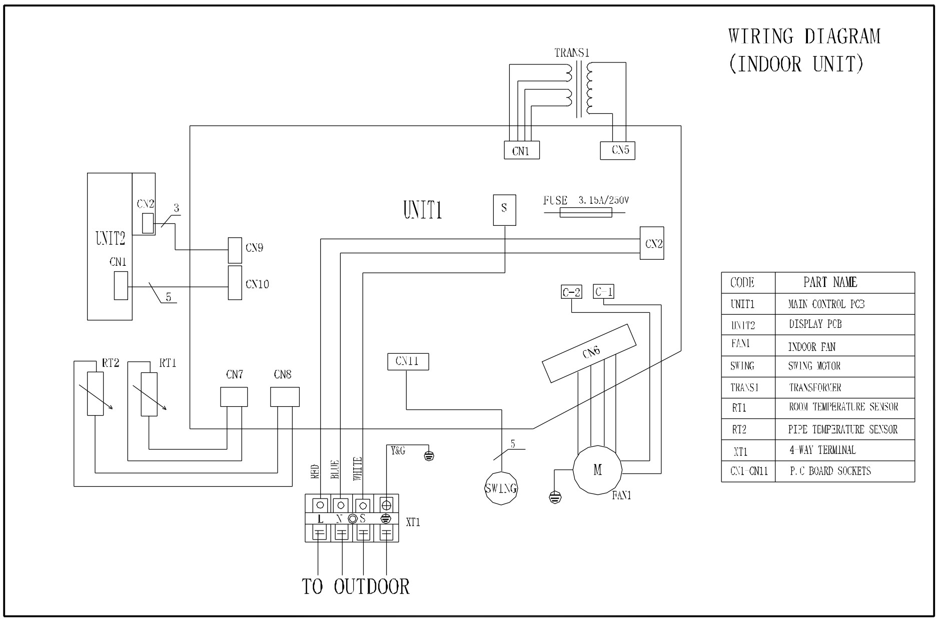
MSG-30HR (3ph)

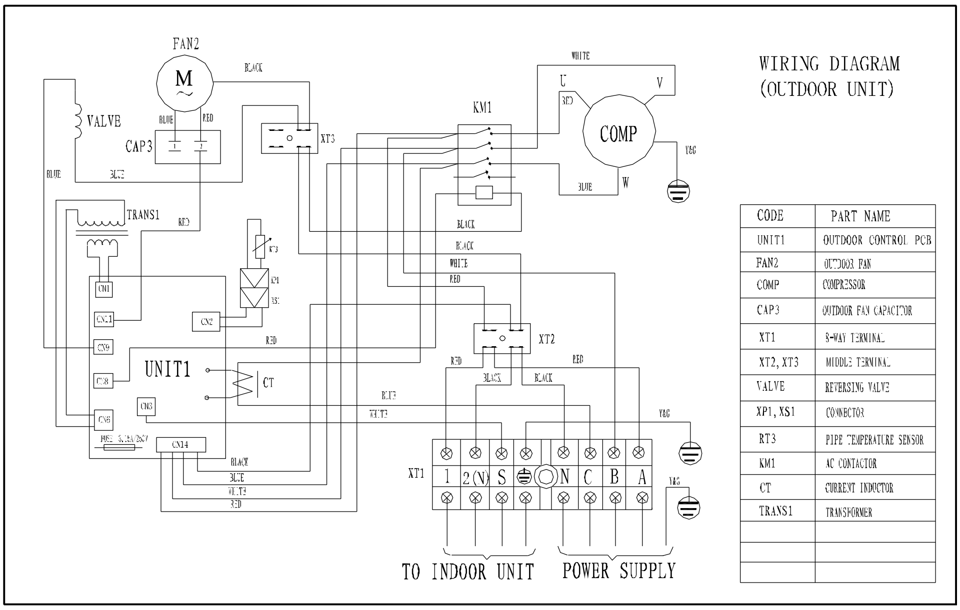




CODE	PART NAME
UNIT3	OUTDOOR DETECTOR BOARD
FAN2	OUTDOOR FAN
CAP2	OUTDOOR FAN CAPACITOR
KM1	AC CONTACTOR
COMP	COMPRESSOR
XT4	4-WAY TERMINAL
XT5	8-WAY TERMINAL
XT6	MIDDLE TERMINAL
RT3	PIPE TEMPERATURE SENSOR
XS8, XP8	CONNECTORS
VALVE	REVERSING VALVE
CT1	CURRENT INDUCTOR
CN301-CN305	P.C BOARD SOCKET

MSG-36HR (3ph)


WIRING DIAGRAM
(INDOOR UNIT)
TRANS1
CN1
CN5
UNIT1
UNIT2
FUSE 3.15A/250V
CN2
CN9
CN10
C-2
C-1
CN6
CN11
RT2
RT1
CN7
CN8
RED
BLUE
WHITE
Y&G
SWING
M
FAN1
XT1
TO OUTDOOR
CODE
PART NAME
UNIT1
MAIN CONTROL PCB
UNIT2
DISPLAY PCB
FAN1
INDOOR FAN
SWING
SWING MOTOR
TRANS1
TRANSFORMER
RT1
ROOM TEMPERATURE SENSOR
RT2
PIPE TEMPERATURE SENSOR
XT1
4-WAY TERMINAL
CN1-CN11
P.C BOARD SOCKETS


WIRING DIAGRAM
(OUTDOOR UNIT)
FAN2
M
VALVE
CAP3
XT3
KM1
COMP
U
V
W
TRANS1
UNIT1
CT
XT2
XT1
1
2(N)
S
N
C
B
A
TO INDOOR UNIT
POWER SUPPLY
CODE
PART NAME
UNIT1
OUTDOOR CONTROL PCB
FAN2
OUTDOOR FAN
COMP
COMPRESSOR
CAP3
OUTDOOR FAN CAPACITOR
XT1
8-WAY TERMINAL
XT2, XT3
MIDDLE TERMINAL
VALVE
REVERSING VALVE
XP1, XS1
CONNECTOR
RT3
PIPE TEMPERATURE SENSOR
KM1
AC CONTACTOR
CT
CURRENT INDUCTOR
TRANS1
TRANSFORMER

8. Installation details

8.1 Wrench torque sheet for installation

Outside diameter		Torque
mm	inch	Kg.m
φ6.35	1/4	1.8
φ9.52	3/8	4.2
φ12.7	1/2	5.5
φ15.88	5/8	6.6
φ19.05	3/4	6.6

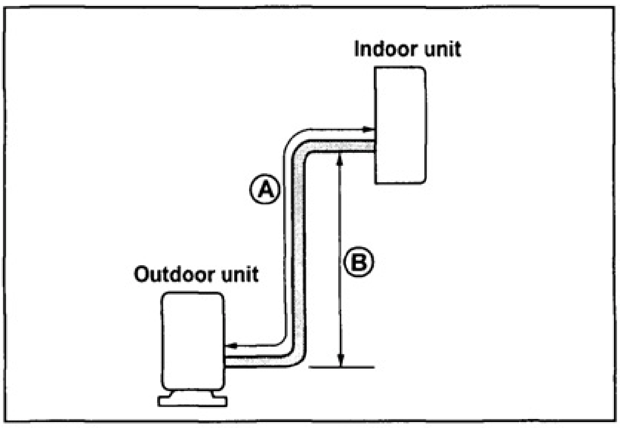
8.2 Connecting the cables

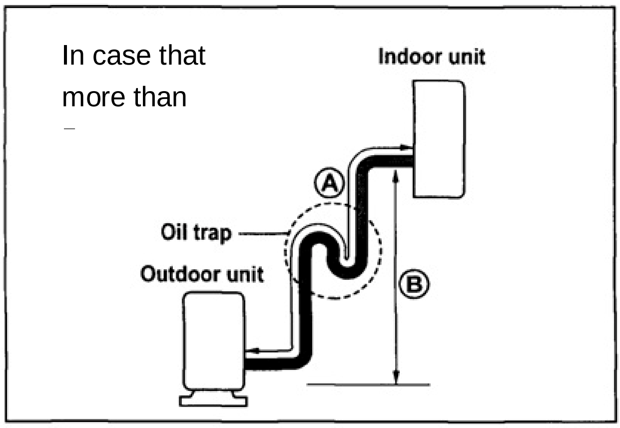
The power cord of connect should be selected according to the following specifications sheet.

	Grade					
Unit	7K	9K	12K	18K	24K	28K
mm2	1.0	1.0	1.5	2.5	2.5	2.5

8.3 Pipe length and the elevation

Capacity	Pipe size		Standard length	Max.	Max.	Additional
			(m)	Elevation	Elevation	refrigerant
Btu/h	GAS	LIQUID		B (m)	A (m)	(g/m)
7k~12K	3/8'' (φ9.52)	1/4'' (φ6.35)	5	5	10	30
	1/2'' (φ12.7)	1/4'' (φ6.35)	5	5	10	30
16K~28K	1/2'' (φ12.7)	1/4'' (φ6.35)	5	8	15	30
	5/8'' (φ15.88)	1/4'' (φ6.35)	5	10	20	30
	5/8'' (φ15.88)	3/8'' (φ9.52)	5	10	20	65
30K~36K	5/8'' (φ15.88)	3/8'' (φ9.52)	5	15	30	65
	3/4'' (φ19.05)	3/8'' (φ9.52)	5	15	30	65





Caution:

Capacity is base on standard length and maximum allowance length is base of reliability.

Oil trap should be install per 5-7 meters.

8.4 Air purging of the piping and indoor unit

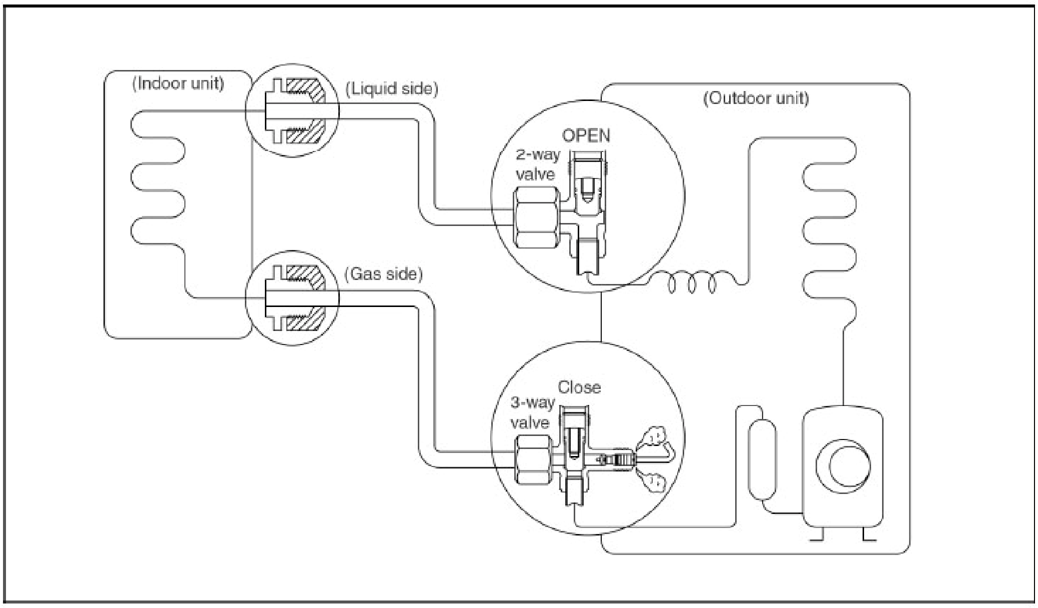
Required tools:

Hexagonal wrench; adjustable wrench; torque wrenches, wrench to hold the joints and gas leak detector.

Note:

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration piping, it will affect the compressor, reduce the cooling capacity, and could lead to a malfunction of unit.

Be sure, using a torque wrench to tighten the service port cap (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.



Procedure

1. **Recheck the piping connections.**
2. **Open the valve stem of the 2-way valve counterclockwise approximately 90', wait 10 seconds, and then set it to closed position.**

§ Be sure to use a hexagonal wrench to operate the valve stem

3. **Check for gas leakage.**

§ Check the flare connection for gas leakage

4. **Purge the air from the system.**

§ Set the 2-way valve to the open position and remove the cap from the 3-way valve's service port.

§ Using the hexagonal wrench to press the valve core pin, discharge for three seconds and then wait for one minute.

5. **Use torque wrench to tighten the service port cap to a torque of 1.8 kg.m. (18n.m)**
6. **Set the 3-way valve to the opened position.**
7. **Mounted the valve stem nuts to the 2-way and 3-way valves.**
8. **Check for gas leakage.**

§ At this time, especially check for gas leakage from the 2-way and 3-way stem nuts, and from the service port.

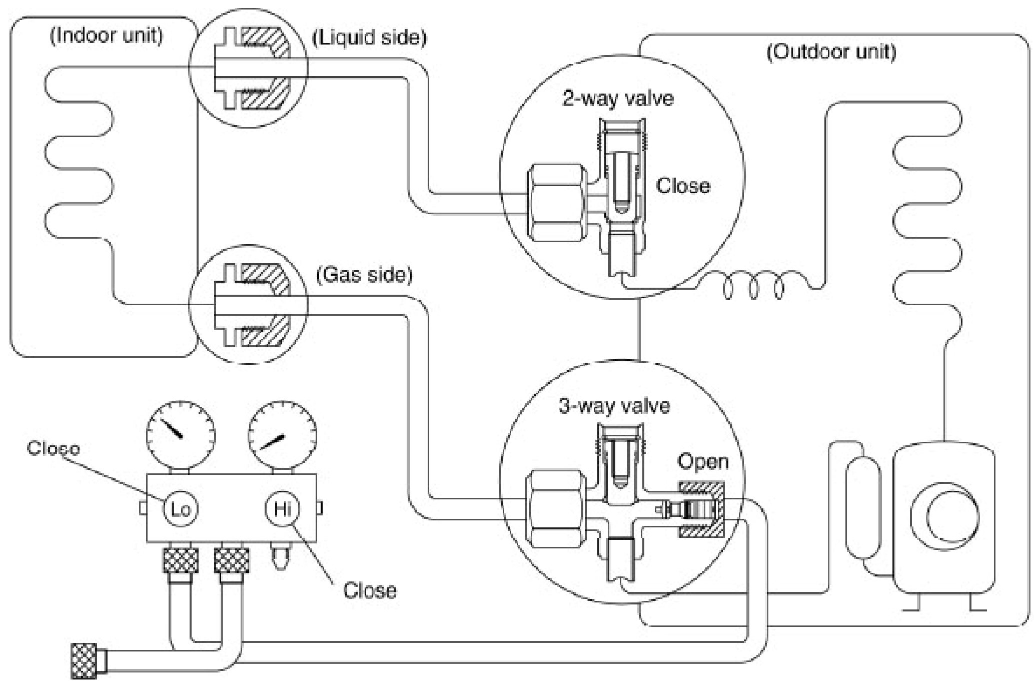
Caution:

If gas leakage is discovered in step (3) above, take the following measures.

If the leaks stop when the piping connections are tightened further, continue working from step (4).

If the gas leaks do not stop when the connections are retightened, repair the location of the leak, discharge all of the gas through the service port, and then recharge with the specified amount of gas from a gas cylinder.

8.5 Pumping down (Re-installation)



Procedure

1. Confirm that both the 2-way and 3-way valves are set to the opened position.

§ Remove the valve stem caps and confirm that the valve stems are in the opened position.

§ Be sure to use a hexagonal wrench to operate the valve stems.

2. Operate the unit for 10 to 15 minutes.

3. Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.

§ Connect the charge hose with the push pin to the gas service port.

4. Air purging of the charge hose.

§ Open the low-pressure valve on the charge set slightly to purge air from the charge hose.

5. Set the 2-way valve to the close position.

6. Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0.1MPa.

7. Immediately set the 3-way valve to the closed position.

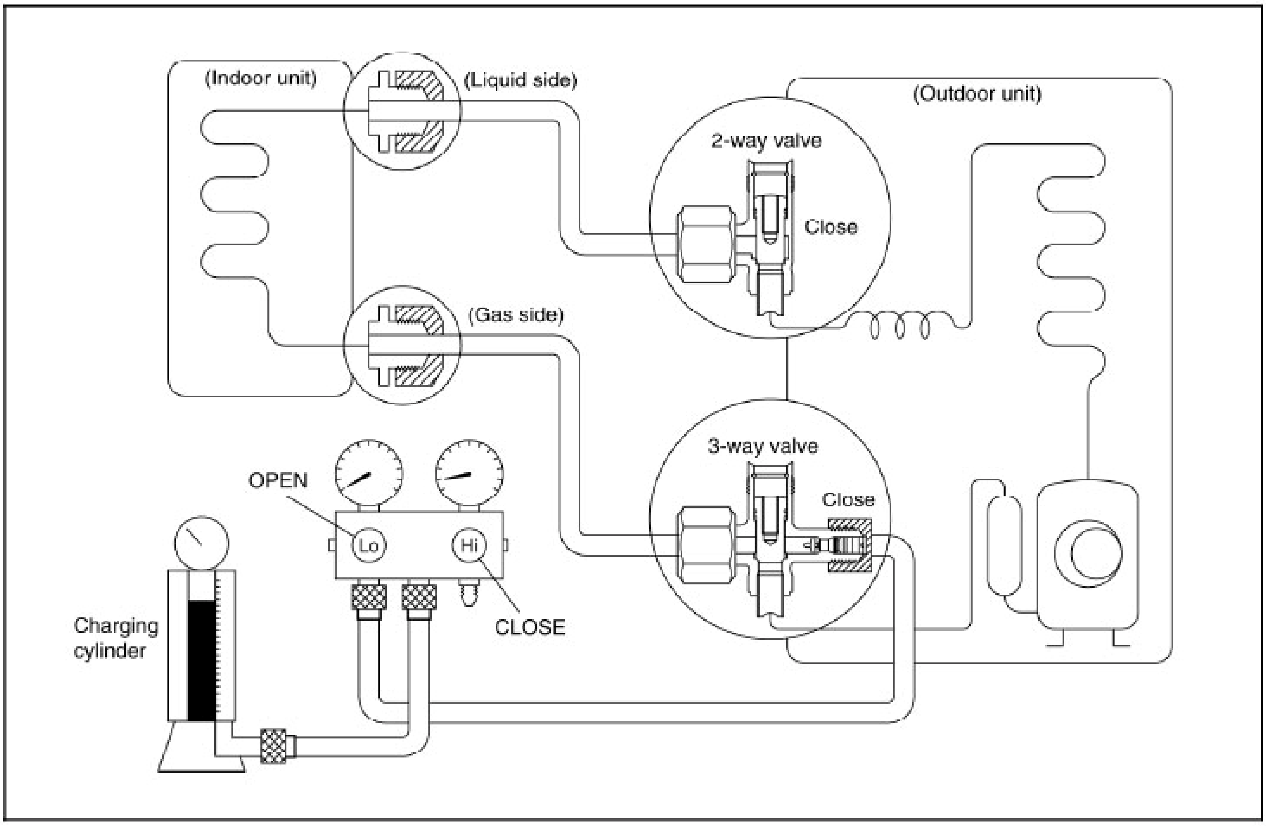
§ Do this quickly so that the gauge ends up indicating 0.3 to 0.5Mpa.

8. Disconnect the charge set, and amount the 2-way and 3-way valve's stem nuts and service port caps.

§ Use a torque wrench to tighten the service port cap to a torque of 1.8 kg.m.

§ Be sure to check for gas leakage.

8.6 Re-air purging (Re-installation)



Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the closed position.

2. Connect the charge set and a charging cylinder to the service port of the 3-way valve.

§ Leave the valve on the charging cylinder closed.

3. Air purging.

§ Open the valves on the charging cylinder and the charge set. Purge the air by loosening the flare nut on the 2-way valve approximately 45' for 3 seconds then closing it for 1 minutes; repeat 3 times.

§ After purging the air, use a torque wrench to tighten the flare nut to on the 2-way valve.

4. Check the gas leakage.

§ Check the flare connections for gas leakage.

5. Discharge the refrigerant.

§ Close the valve on the charging cylinder and discharge the refrigerant until the gauge indicate 0.3 to 0.5 Mpa.

6. Disconnect the charge set and the charging cylinder, and set the 2-way and 3-way valves to the open position.

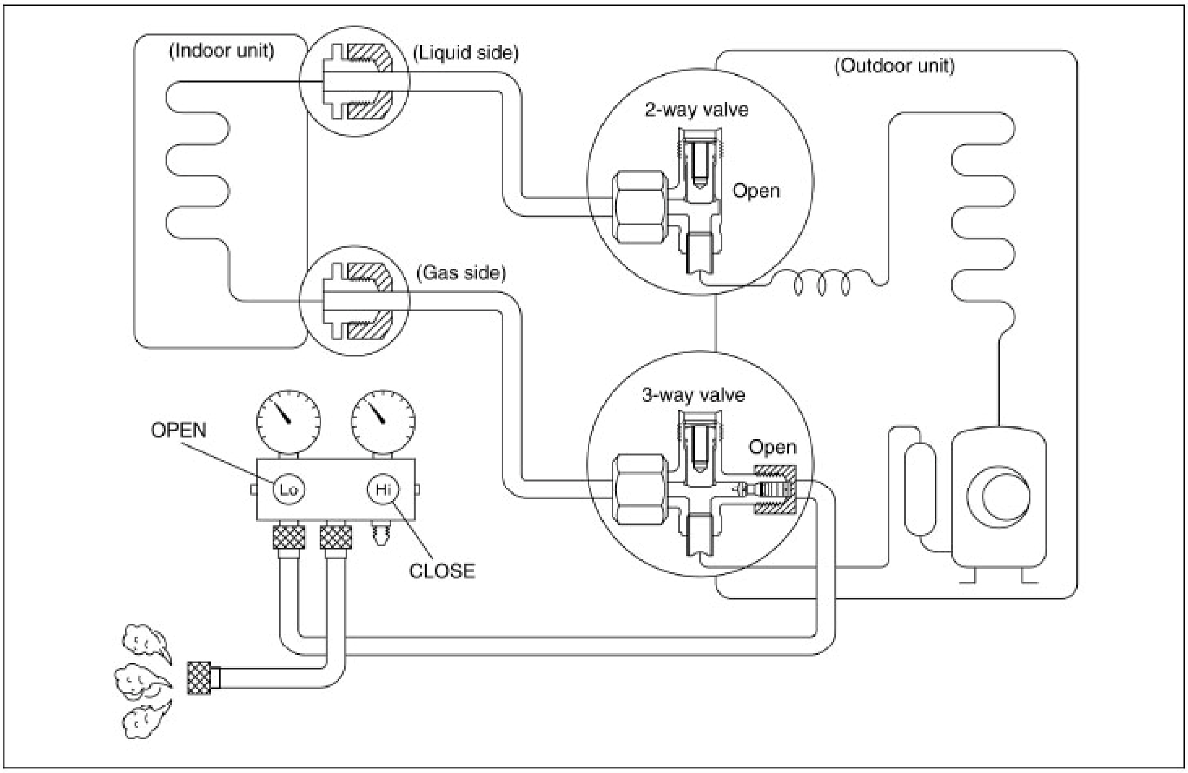
§ Be sure to use a hexagonal wrench to operate the valve stems.

7. Mount the valve stems nuts and the service port cap.

§ Be sure to use a torque wrench to tighten the service port cap to a torque 18N.m.

§ Be sure to check the gas leakage.

8.7 Balance refrigerant of the 2-way, 3-way valves



Procedure:

1. Confirm that both the 2-way and 3-way valves are set to the open position.

2. Connect the charge set to the 3-way valve's service port.

§ Leave the valve on the charge set closed.

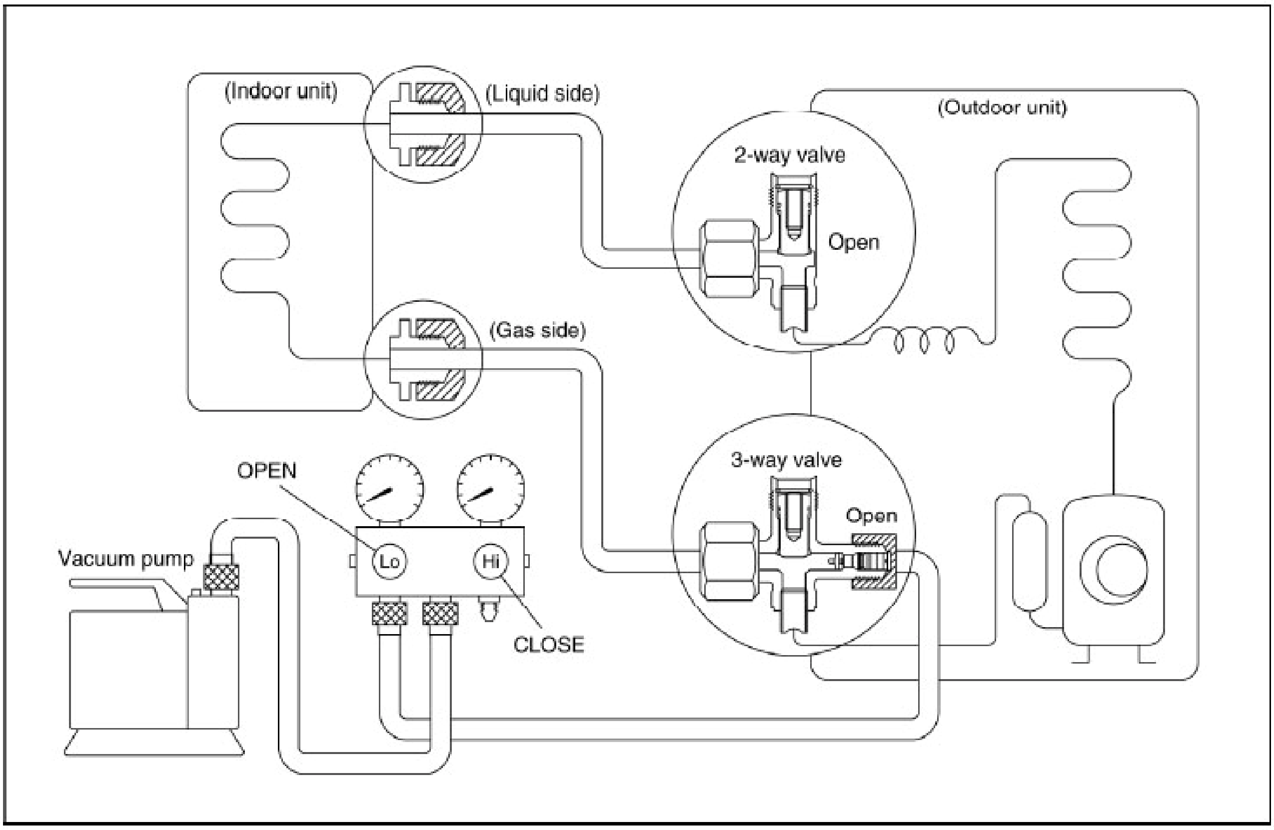
§ Connect the charge hose with the push pin to the service port.

3. Open the valves (Low side) on the charge set and discharge the refrigerant until the gauge indicates 0.05 to 0.1 Mpa.

§ If there is no air in the refrigeration cycle [the pressure when the air conditioner is not running is higher than 0.1Mpa, discharge the refrigerant until the gauge indicates 0.05 to 0.1 Mpa. If this is the case, it will not be necessary to apply a evacuation.

§ Discharge the refrigeration gradually; if it is discharged too suddenly, the refrigeration oil sill be discharged.

8.8 Evacuation



Procedure:

1. Connect the vacuum pump to the charge set's centre hose.

2. Evacuation for approximately one hour.

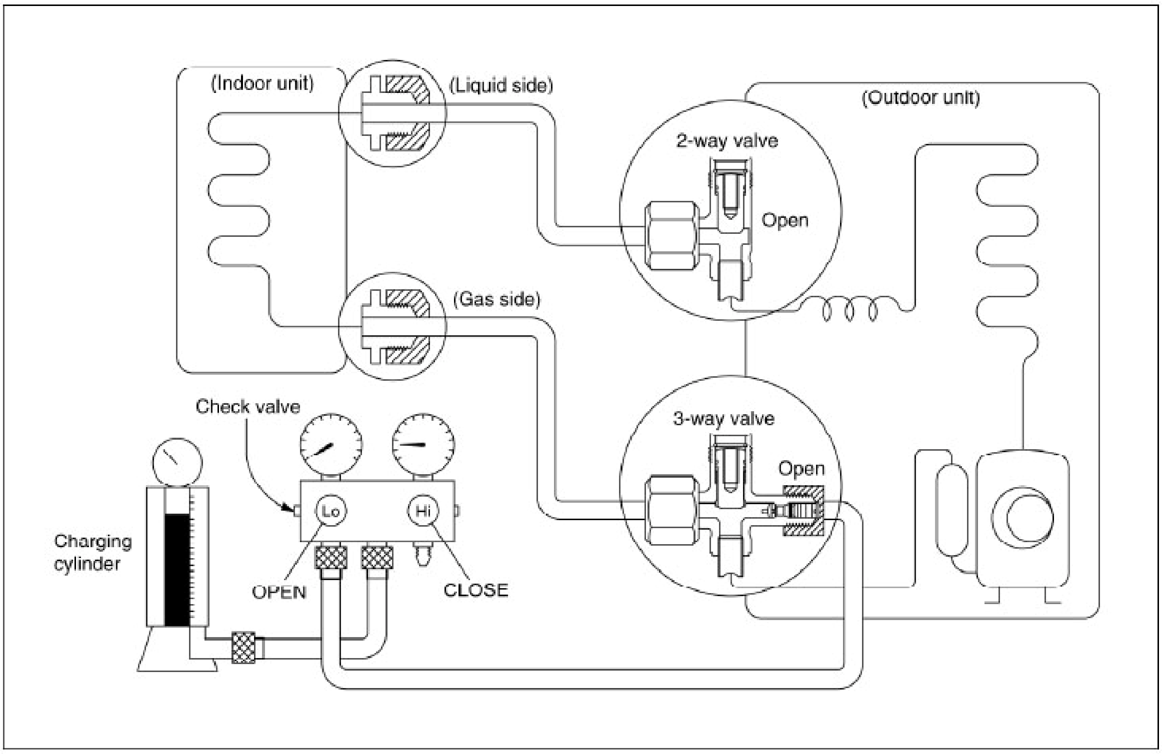
§ Confirm that the gauge needle has moved toward -0.1 Mpa (-76 cmHg) [vacuum of 4 mmHg or less].

3. Close the valve (Low side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).

4. Disconnect the charge hose from the vacuum pump.

§ Vacuum pump oil, if the vacuum pump oil becomes dirty or depleted, replenish as needle.

8.9 Gas charging



Procedure:

1. Connect the charge hose to the charging cylinder.

§ Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.

2. Purge the air from the charge hose.

§ Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).

3. Open the valves (Low side) on the charge set and charge the system with liquid refrigerant.

§ If the system cannot be charge with the specified amount of refrigerant, if can be charged with a little at a time (approximately 150g each time0 while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure.(pumping down-pin).

4. Immediately disconnect the charge hose from the 3-way valve's service port.

§ Stopping partway will allow the refrigerant to be discharged.

§ If the system has been charged with liquid refrigerant while operating the air conditioner, turn off the air conditioner before disconnecting the hose.

5. Mounted the valve stem caps and the service port

§ Use torque wrench to tighten the service port cap to a torque of 18N.m.

§ Be sure to check for gas leakage.

9. Capacity table

9.1 MSG-24CR

SUMMER	***Cooling mode***	OUTDOOR TEMPERATURE DRY					
Indoor Conditions		25ºC	30ºC	35ºC	40ºC	45ºC	50ºC
21ºC D 15ºC W	Total capacity kW	6.76	6.35	5.88	5.41	5.05	4.69
	Sensitive capacity kW	4.93	4.74	4.44	4.11	3.86	3.61
	Input kW.	2.35	2.48	2.59	2.79	3.10	3.21
24ºC D 17ºC W	Total capacity kW	7.31	6.99	6.53	6.17	5.75	5.30
	Sensitive capacity kW	5.38	5.21	4.96	4.72	4.43	4.11
	Input kW.	2.43	2.56	2.67	2.88	3.20	3.31
27ºC D 19ºC W	Total capacity kW	7.79	7.44	**7.03**	6.64	6.19	5.71
	Sensitive capacity kW	5.92	5.73	**5.48**	5.22	4.88	4.51
	Input kW.	2.50	2.64	**2.75**	2.97	3.30	3.41
32ºC D 23ºC W	Total capacity kW	8.68	8.32	8.05	7.49	6.84	6.45
	Sensitive capacity kW	6.68	6.49	6.32	5.91	5.47	5.22
	Input kW.	2.60	2.75	2.86	3.09	3.43	3.55

9.2 MSG-24HR

SUMMER	***Cooling mode***	OUTDOOR TEMPERATURE DRY					
Indoor Conditions		25ºC	30ºC	35ºC	40ºC	45ºC	50ºC
21ºC D 15ºC W	Total capacity kW	6.76	6.35	5.88	5.41	5.05	4.69
	Sensitive capacity kW	4.93	4.74	4.44	4.11	3.86	3.61
	Input kW.	2.35	2.48	2.59	2.79	3.10	3.21
24ºC D 17ºC W	Total capacity kW	7.31	6.99	6.53	6.17	5.75	5.30
	Sensitive capacity kW	5.38	5.21	4.96	4.72	4.43	4.11
	Input kW.	2.43	2.56	2.67	2.88	3.20	3.31
27ºC D 19ºC W	Total capacity kW	7.79	7.44	**7.03**	6.64	6.19	5.71
	Sensitive capacity kW	5.92	5.73	**5.48**	5.22	4.88	4.51
	Input kW.	2.50	2.64	**2.75**	2.97	3.30	3.41
32ºC D 23ºC W	Total capacity kW	8.68	8.32	8.05	7.49	6.84	6.45
	Sensitive capacity kW	6.68	6.49	6.32	5.91	5.47	5.22
	Input kW.	2.60	2.75	2.86	3.09	3.43	3.55

WINTER		OUTDOOR CONDITIONS					
Indoor Conditions		12ºC D 11ºC W	7ºC D 6ºC W	4ºC D 3ºC W	0ºC D -1ºC W	-4ºC D -6ºC W	-7ºC D -8ºC W
15ºC	Capacity kW	9.33	8.19	7.50	6.58	5.67	4.98
	Input kW.	2.95	2.68	2.50	2.31	2.01	1.83
18ºC	Capacity kW	9.16	8.04	7.31	6.35	5.38	4.66
	Input kW.	3.03	2.73	2.53	2.37	2.07	1.85
20ºC	Capacity kW	9.08	**7.91**	7.23	6.19	5.09	4.22
	Input kW.	3.11	**2.75**	2.61	2.42	2.13	1.95
22ºC	Capacity kW	9.00	7.82	7.12	6.10	5.01	4.15
	Input kW.	3.22	2.78	2.65	2.51	2.27	2.03

9.3 MSG-30CR

SUMMER	***Cooling mode***	OUTDOOR TEMPERATURE DRY					
Indoor Conditions		25ºC	30ºC	35ºC	40ºC	45ºC	50ºC
21ºC D 15ºC W	Total capacity kW	7.88	7.40	6.86	6.31	5.90	5.47
	Sensitive capacity kW	5.75	5.52	5.18	4.79	4.50	4.21
	Input kW.	2.74	2.89	3.01	3.25	3.61	3.73
24ºC D 17ºC W	Total capacity kW	8.53	8.15	7.62	7.20	6.71	6.19
	Sensitive capacity kW	6.27	6.07	5.79	5.51	5.17	4.79
	Input kW.	2.82	2.98	3.10	3.35	3.72	3.85
27ºC D 19ºC W	Total capacity kW	9.09	8.68	**8.20**	7.75	7.22	6.66
	Sensitive capacity kW	6.91	6.69	**6.40**	6.08	5.69	5.26
	Input kW.	2.91	3.07	**3.20**	3.46	3.84	3.97
32ºC D 23ºC W	Total capacity kW	10.12	9.71	9.39	8.73	7.98	7.52
	Sensitive capacity kW	7.79	7.57	7.37	6.90	6.38	6.09
	Input kW.	3.03	3.19	3.33	3.59	3.99	4.13

9.4 MSG-30HR

SUMMER	***Cooling mode***	OUTDOOR TEMPERATURE DRY					
Indoor Conditions		25ºC	30ºC	35ºC	40ºC	45ºC	50ºC
21ºC D 15ºC W	Total capacity kW	7.88	7.40	6.86	6.31	5.90	5.47
	Sensitive capacity kW	5.75	5.52	5.18	4.79	4.50	4.21
	Input kW.	2.74	2.89	3.01	3.25	3.61	3.73
24ºC D 17ºC W	Total capacity kW	8.53	8.15	7.62	7.20	6.71	6.19
	Sensitive capacity kW	6.27	6.07	5.79	5.51	5.17	4.79
	Input kW.	2.82	2.98	3.10	3.35	3.72	3.85
27ºC D 19ºC W	Total capacity kW	9.09	8.68	**8.20**	7.75	7.22	6.66
	Sensitive capacity kW	6.91	6.69	**6.40**	6.08	5.69	5.26
	Input kW.	2.91	3.07	**3.20**	3.46	3.84	3.97
32ºC D 23ºC W	Total capacity kW	10.12	9.71	9.39	8.73	7.98	7.52
	Sensitive capacity kW	7.79	7.57	7.37	6.90	6.38	6.09
	Input kW.	3.03	3.19	3.33	3.59	3.99	4.13

WINTER		OUTDOOR CONDITIONS					
Indoor Conditions		12ºC D 11ºC W	7ºC D 6ºC W	4ºC D 3ºC W	0ºC D -1ºC W	-4ºC D -6ºC W	-7ºC D -8ºC W
15ºC	Capacity kW	10.37	9.10	8.33	7.31	6.30	5.53
	Input kW.	3.33	3.03	2.81	2.60	2.27	2.06
18ºC	Capacity kW	10.18	8.93	8.13	7.06	5.98	5.18
	Input kW.	3.41	3.07	2.86	2.67	2.33	2.09
20ºC	Capacity kW	10.09	**8.79**	8.03	6.88	5.66	4.69
	Input kW.	3.51	**3.10**	2.95	2.73	2.41	2.20
22ºC	Capacity kW	10.00	8.69	7.91	6.78	5.56	4.61
	Input kW.	3.63	3.13	2.99	2.83	2.55	2.29

9.5 MSG-36CR

SUMMER	***Cooling mode***	OUTDOOR TEMPERATURE DRY					
Indoor Conditions		25ºC	30ºC	35ºC	40ºC	45ºC	50ºC
21ºC D 15ºC W	Total capacity kW	9.87	9.27	8.59	7.90	7.38	6.85
	Sensitive capacity kW	7.21	6.92	6.48	6.00	5.64	5.28
	Input kW.	3.52	3.72	3.87	4.18	4.65	4.80
24ºC D 17ºC W	Total capacity kW	10.69	10.21	9.54	9.02	8.41	7.75
	Sensitive capacity kW	7.85	7.61	7.25	6.90	6.47	6.00
	Input kW.	3.64	3.84	4.00	4.32	4.80	4.96
27ºC D 19ºC W	Total capacity kW	11.38	10.88	**10.27**	9.71	9.05	8.34
	Sensitive capacity kW	8.65	8.37	**8.01**	7.62	7.13	6.59
	Input kW.	3.75	3.96	**4.12**	4.45	4.94	5.11
32ºC D 23ºC W	Total capacity kW	12.68	12.16	11.76	10.94	10.00	9.42
	Sensitive capacity kW	9.76	9.48	9.23	8.64	8.00	7.63
	Input kW.	3.90	4.11	4.28	4.63	5.14	5.31

9.6 MSG-36HR

SUMMER	***Cooling mode***	OUTDOOR TEMPERATURE DRY					
Indoor Conditions		25ºC	30ºC	35ºC	40ºC	45ºC	50ºC
21ºC D 15ºC W	Total capacity kW	9.87	9.27	8.59	7.90	7.38	6.85
	Sensitive capacity kW	7.21	6.92	6.48	6.00	5.64	5.28
	Input kW.	3.52	3.72	3.87	4.18	4.65	4.80
24ºC D 17ºC W	Total capacity kW	10.69	10.21	9.54	9.02	8.41	7.75
	Sensitive capacity kW	7.85	7.61	7.25	6.90	6.47	6.00
	Input kW.	3.64	3.84	4.00	4.32	4.80	4.96
27ºC D 19ºC W	Total capacity kW	11.38	10.88	**10.27**	9.71	9.05	8.34
	Sensitive capacity kW	8.65	8.37	**8.01**	7.62	7.13	6.59
	Input kW.	3.75	3.96	**4.12**	4.45	4.94	5.11
32ºC D 23ºC W	Total capacity kW	12.68	12.16	11.76	10.94	10.00	9.42
	Sensitive capacity kW	9.76	9.48	9.23	8.64	8.00	7.63
	Input kW.	3.90	4.11	4.28	4.63	5.14	5.31

WINTER		OUTDOOR CONDITIONS					
Indoor Conditions		12ºC D 11ºC W	7ºC D 6ºC W	4ºC D 3ºC W	0ºC D -1ºC W	-4ºC D -6ºC W	-7ºC D -8ºC W
15ºC	Capacity kW	13.14	11.53	10.56	9.27	7.98	7.01
	Input kW.	4.42	4.02	3.74	3.46	3.02	2.73
18ºC	Capacity kW	12.90	11.32	10.30	8.94	7.58	6.56
	Input kW.	4.53	4.08	3.80	3.55	3.10	2.78
20ºC	Capacity kW	12.79	**11.14**	10.18	8.72	7.17	5.95
	Input kW.	4.66	**4.12**	3.91	3.63	3.20	2.93
22ºC	Capacity kW	12.67	11.02	10.03	8.59	7.05	5.84
	Input kW.	4.83	4.16	3.97	3.77	3.40	3.04

10. Electronic function

10.1 Electronic control working environment

Input voltage: 175~253V

Input power frequency:50HZ

Ambient temperature: -7°C+43°C

Indoor fan normal working amp is less than 1A

Outdoor fan normal working amp is less than 1.5A

Four-way valve normal working amp is less than 1A

Swing motor: DC12V

Compressor: single-phase power supply. Its normal working amp is less than 15A

10.2 Proper symbols and their meaning

T1: Indoor ambient temperature

T2: Indoor evaporator temperature

T3: Outdoor condenser temperature.

TS: Setting temperature through the remote controller

I_{3sec}: Self-protection amp of compressor, continue three seconds until turns off the compressor.

I_{5MIN}: Self-protection amp of compressor, continue five minutes until turns off the compressor.

I_{FAN}: Self-protection amp of outdoor fan/indoor fans when they change from higher wind to lower wind.

$I_{RESTORE}$: Amp self-protection return value

TE1: Anti-cold wind, from Fan Off to Breeze temperature

TE2: Anti-cold wind, from Breeze to Setting Fan Speed temperature

TE3: Anti-cold wind, from Setting Fan Speed to Breeze temperature

TE4: Anti-cold wind, from Breeze to Fan Off temperature

TE5: Evaporator low temperature protection entering temperature

TE6: Evaporator low temperature protection restoring temperature

TE7: Evaporator high temperature protection, compressor off temperature

TE8: Evaporator high temperature protection, fan off temperature

TE9: Evaporator high temperature protection, restoring temperature

TE10: Condenser high temperature protection, compressor off temperature.

TE11: Condenser high temperature protection, restoring temperature.

TE14: The indoor restoring temperature when the compressor is off on the heating mode.

TE16: The indoor evaporator temperature after the defrost action, fan on temperature.

TC1: Outdoor condenser sensor temperature for the defrost condition 1.

TC2: Condenser sensor temperature after defrost.

TC3: Outdoor condenser sensor temperature for the defrost condition 2.

10.3 Function

Remote receiving

Testing and forced running

Position set for indoor unit wind vane

LED displaying and alarm

On or off Timer

Protection for the compressor

Current protection

High temperature protection of indoor heat exchanger at heating mode

Auto defrosting and heating recovery at heating mode

Anti cold air at heating mode

10.4 Protection

10.4.1 3 minutes delay at restart for compressor.

10.4.2 Sensor protection at open circuit and breaking disconnection

10.4.3 Fan Speed is out of control. When Indoor Fan Speed is too high(higher than High Fan+300RPM)or too low(lower than 400RPM), the unit stops and LED displays failure information and can't returns to normal operation automatically.

10.4.4 Cross Zero signal error warning. If there is no Cross Zero signals in 4 minutes, the unit stops and LED displays failure information and can't returns to normal operation automatically.

10.4.5 The current protection of the compressor

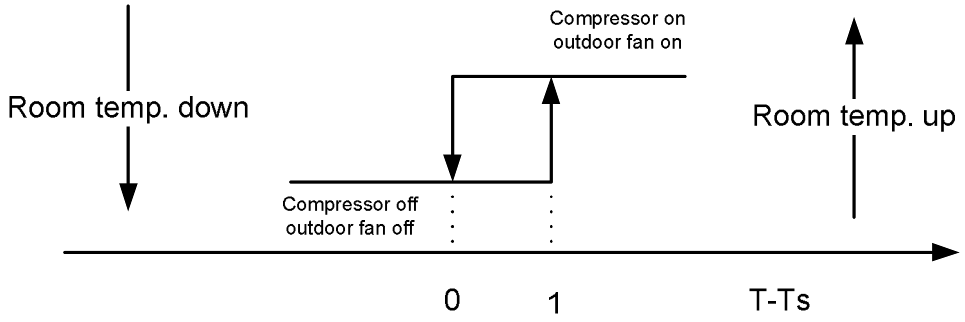
10.5 Fan only mode

Fan speed is high/mid/low/ Auto

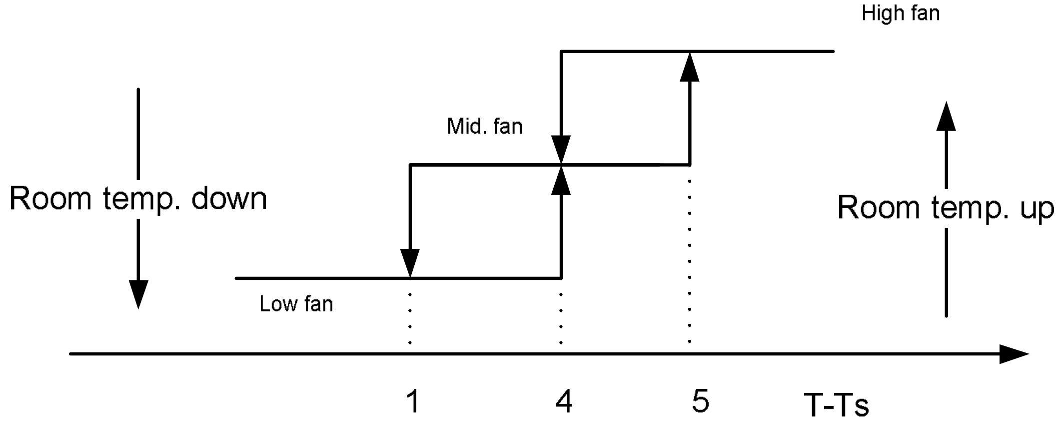
10.6 Cooling mode

The 4-way valve is closed at cooling mode.

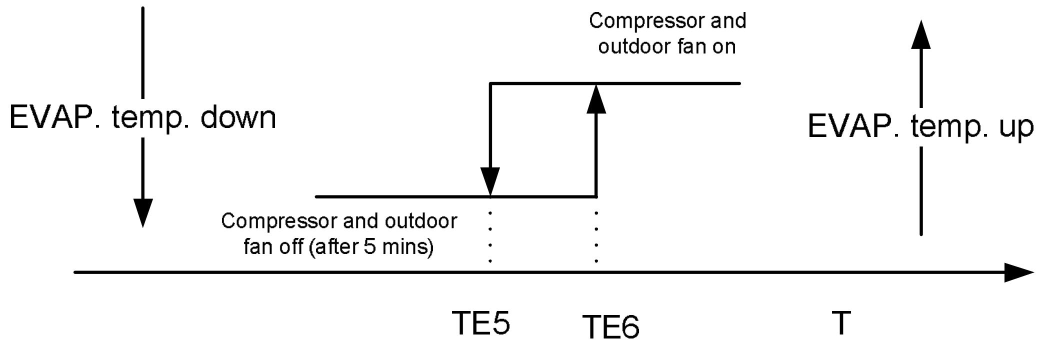
The action of the compressor and the outdoor fan:(T=indoor temperature)



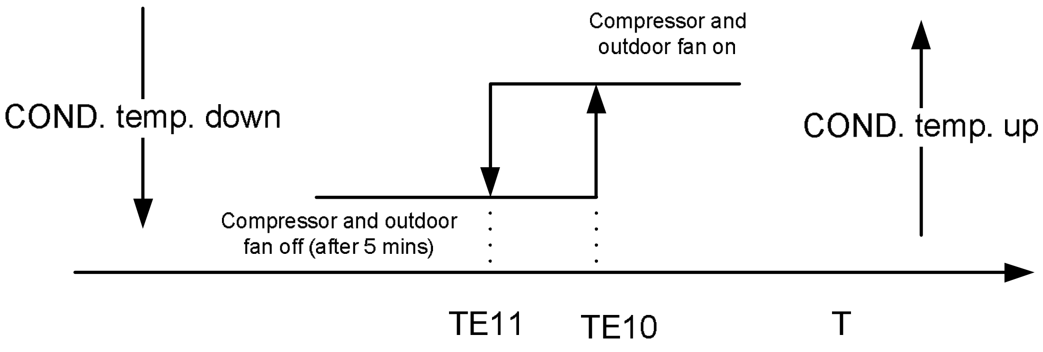
Auto fan at cooling mode:



Anti-freezing control to indoor evaporator at cooling mode (T: evaporator temp.)



Condenser high temperature protection (only for heat pump)



10.7 Dehumidifying mode

Indoor fan speed at low speed.

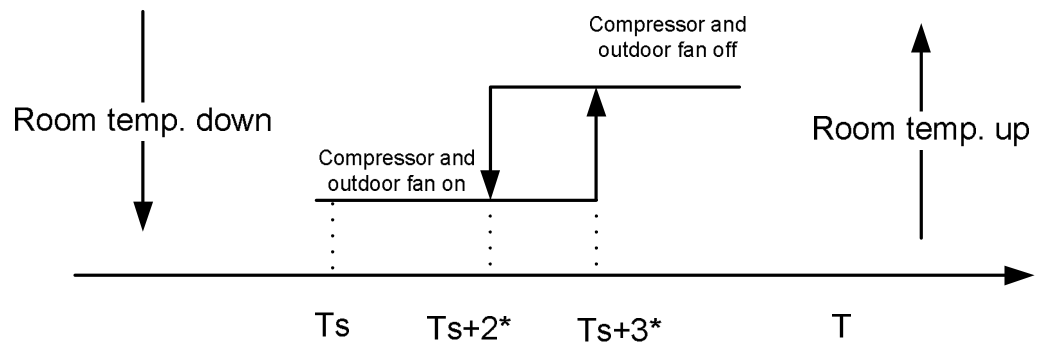
Protection is same as cooling mode.

10.8 Heating mode

10.8.1 Generally, the 4-way valve is open in heating mode, but it is closed in defrosting mode. 4-way valve must delay 2 minutes compared with compressor if the compressor changed into non-heating mode or turned off. 4-way valve doesn't delay in dehumidifying mode

10.8.2 Generally, the outdoor fan is turned off with the on-off action of compressor in heating mode, except for the defrosting mode or the end of defrost

10.8.3 Action of compressor and outdoor fan motor at heating mode: compressor must run for 7 minutes after starting and then judge temperature. Meanwhile other protections are still valid.

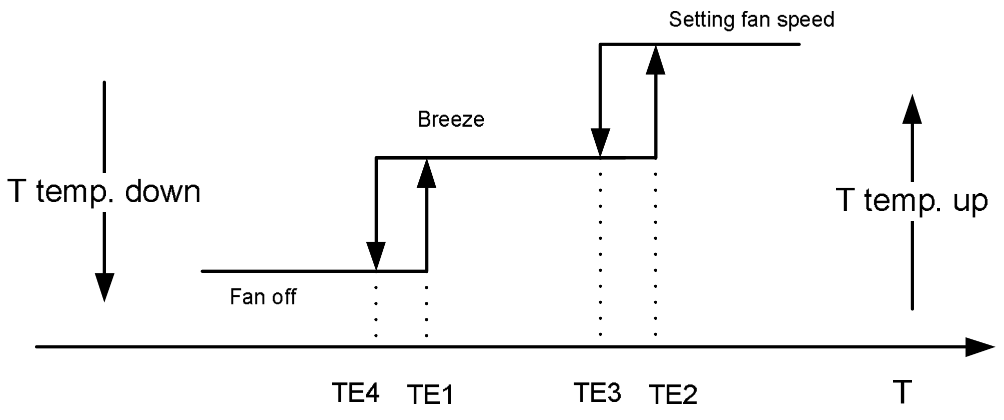


* This parameter can be changed from 0 to 3

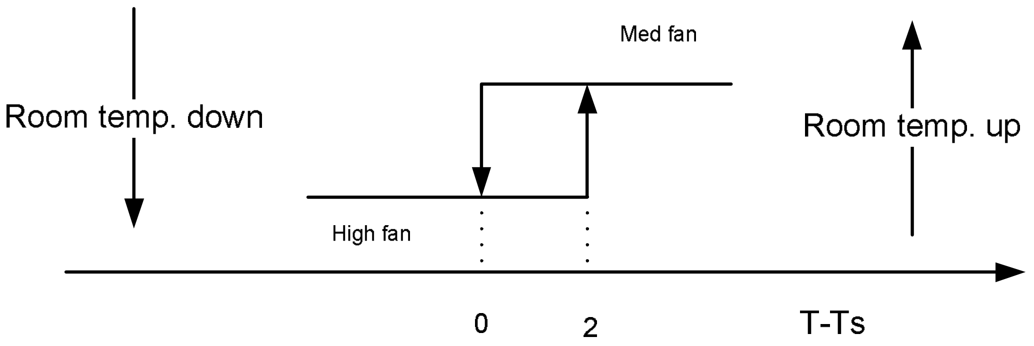
10.8.4 Indoor Fan actions at heating mode

Indoor Fan can be set at HIGH/MID/LOW/AUTO by using a remote controller, but Anti-cold wind

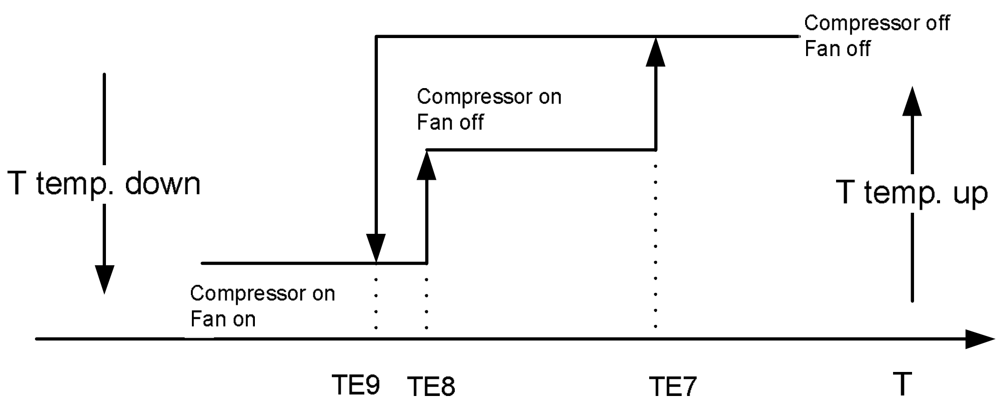
function prevails.
Anti-cold wind control function at heating mode (T=indoor exchanger temp.)



10.8.5 Auto wind at heating mode (T=indoor temp.)



10.8.6 Indoor evaporator high-temperature protection at heating mode (T=indoor exchanger temp.)



10.8.7 The louver opens to Standard Angle ANGLHEAT when power is on for the first time

10.9 Defrosting mode(available for heating mode)

10.9.1 Defrosting condition:

Defrost starts when either of the following:

T3 lower than 0’C, lasts for more than 40 minutes, provided that the time period then the temperature is lower than -3’C consecutively reaches 3 minutes.

Calculate from the end of latest defrost, evaporator high temp. protection only closes outdoor fan with

the compressor still running. Add up to 90 minutes.

10.9.2 Conditions of defrost ending:

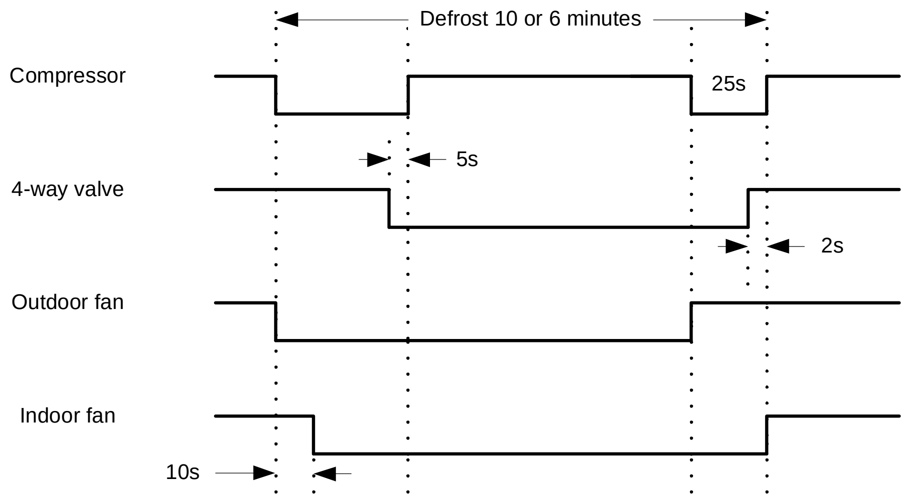
Defrosting ends when either of the following:

The time gets to 10 minutes.

T3>20’C.

The circulation is as following:

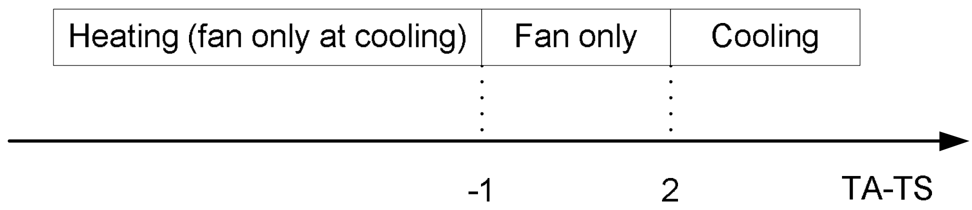
10.9.3 Defrosting Actions



Remark: when the evaporator pipe temperature sensor more than TE16, the indoor fan start to run.

10.10 Auto mode

10.10.1 The air conditioner automatically selects one of the following operation modes: cooling, heating or fan only according to the temperature difference between room temperature (TA) and set temperature (TS).



10.10.2 The indoor fan blows automatically in corresponding selected mode

10.10.3 The motion of indoor fan’s blade should accord with the selected operation mode

10.10.4 One mode should be carried out for at least 15 minutes once selected. If the compressor cannot start for 15 minutes, reselect the operation mode according to the room temp. and set temp., or reselect when the set temp. varies

10.11 Force cooling function

10.11.1 Select forced cooling function with the forced cooling button or the switch

10.11.2 The compressor is unconditionally turned on, after 30 minutes cooling operation whose fan mode is set as low, the A/C operates at the DRY mode with a set temp. of 24℃

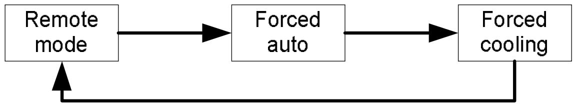
10.11.3 All protections of remote control cooling are available at forced cooling operation

10.11.4 Forced Auto function

Select forced auto function with the forced auto button or the switch.

In forced auto status the A/C operates at remote control mode with a set temp. of 24℃

Manual operation is controlled by touching buttons and divided into force cooling and forced auto mode. It transfer between these two modes by pressing the buttons, the cycling order of the button press is as below graph show to you.

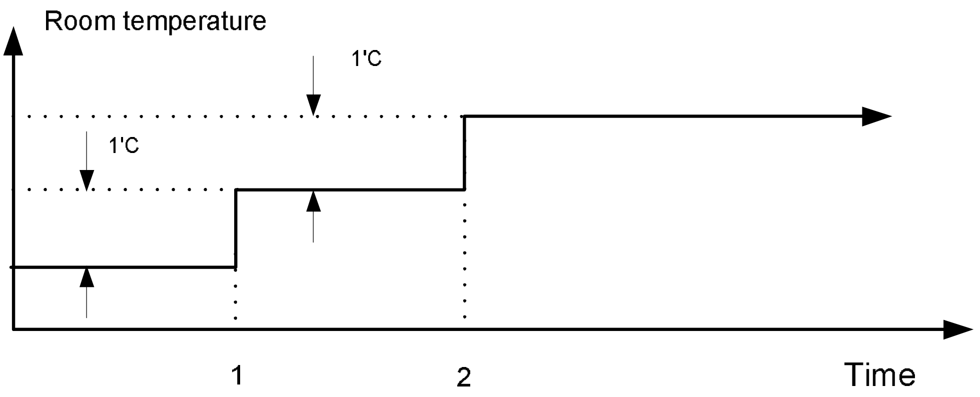


10.12 Sleep mode

10.12.1 The sleep function is available at cooling, heating or auto mode

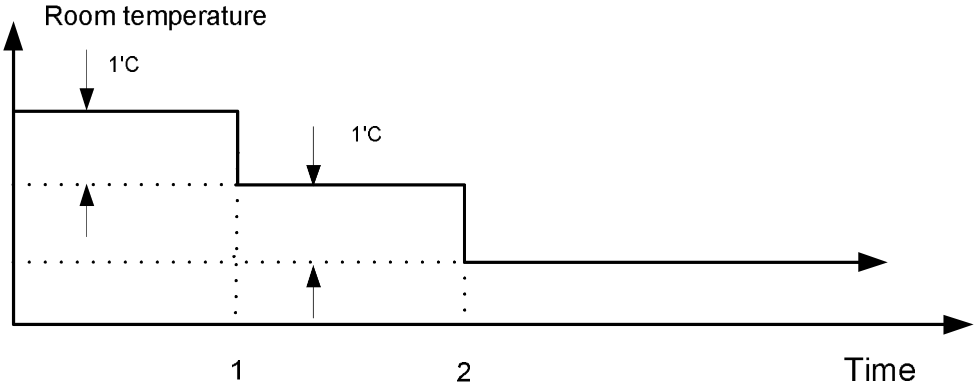
10.12.2 Cooling:

The set temperature rise 1℃ per hour. Two hours later, the set temperature will maintain as a constant and the fan speed is kept at low speed.



10.12.3 Heating:

The set temperature decrease 1℃ per hour. Two hours later, the set temperature will maintain as a constant and the air circulation is kept at low speed (Anti-cold function takes precedence over all).



10.12.4 Auto:

After an hour running under economic mode, the set temp will rise 1℃,if it is under cooling mode; the

set temp will decrease 1℃,if it is under heating mode; the set temp will be changeless, if it is under fan-only mode; the condition will be the same after the air conditioner running under economic mode after 2 hours, and during the next time the set temp do not change. The total time is 7 hours, after 7 hours the unit stops.

10.13 Auto restart function

In case of a sudden power failure, this function automatically sets the unit to previous settings before the power failure when power returns

11. Model and Parameters

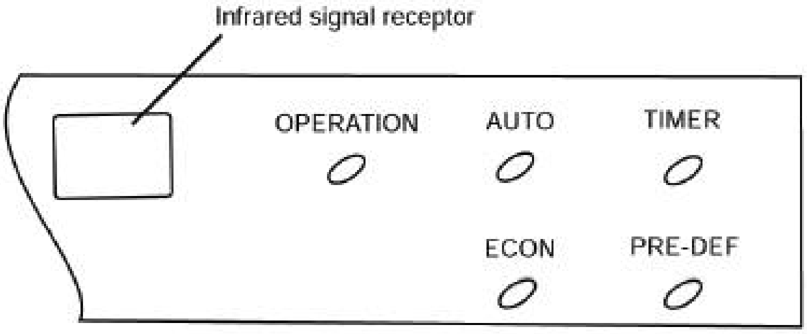
Model	MSG-24CR	MSG-24HR	MSG-30CR	MSG-30HR	MSG-36CR	MSG-36HR
I3SEC [A]	22	22	26	26	34	34
I5MIN [A]	20	20	24	24	32	32
IFAN [A]	16	16	20	20	25	25
IDEFROST [A]	14	14	18	18	22	22
TE1 ['C]		25		25		30
TE2 ['C]		32		32		37
TE3 ['C]		30		30		34
TE4 ['C]		20		20		24
TE5 ['C]	2	2	2	2	2	2
TE6 ['C]	12	12	12	12	12	12
TE7 ['C]		63		63		63
TE8 ['C]		54		54		54
TE9 ['C]		50		50		50
TE10 ['C]		65		65		70
TE11 ['C]		55		55		65
TE14 ['C]		32		32		32
TE16 ['C]		42		42		34

3Ph 380~420V

Model	MSG-30CR	MSG-30HR	MSG-36CR	MSG-36HR
I3SEC [A]	26	26	34	34
I5MIN [A]	24	24	32	32
IFAN [A]	20	20	25	25
IDEFROST [A]	18	18	22	22
TE1 ['C]		25		30
TE2 ['C]		32		37
TE3 ['C]		30		34
TE4 ['C]		20		24
TE5 ['C]	2	2	2	2
TE6 ['C]	12	12	12	12
TE7 ['C]		63		63
TE8 ['C]		54		54
TE9 ['C]		50		50
TE10 ['C]		65		70
TE11 ['C]		55		65
TE14 ['C]		32		32
TE16 ['C]		42		34

12. Troubleshooting

12.1 Display board



§ Operation

The indicator flashes once every second after power is on and illuminates when the air conditioner is in operation.

§ Timer indicator:

The indicator illuminates then TIMER is set ON.

§ PRE-DEF. indicator (For cooling & heating mode only)

The air conditioner starts defrosting automatically if outdoor unit frosts in heating operating. At this time, PRE-DEF. indicator illuminates.

§ Auto indicator:

This indicator flashes when the air conditioner is in AUTO operation.

§ ECON indicator

This indicator illuminates while the air conditioner is in economic operation.

12.2 Troubleshooting

For cooling mode:

Failure phenomenon	**Operation lamp**	**Timer lamp**
Indoor fan speed has been out of control for over 1 minute	☆	X
Indoor room temp. or evaporator sensor is open circuit or short circuit	☆	On
Over current protection of the compressor occurs 4 times	X	☆
EEROM error	On	☆
No over-zero signal	☆	☆

r Extinguish

☆ Flash at 5Hz

For heat pump mode:

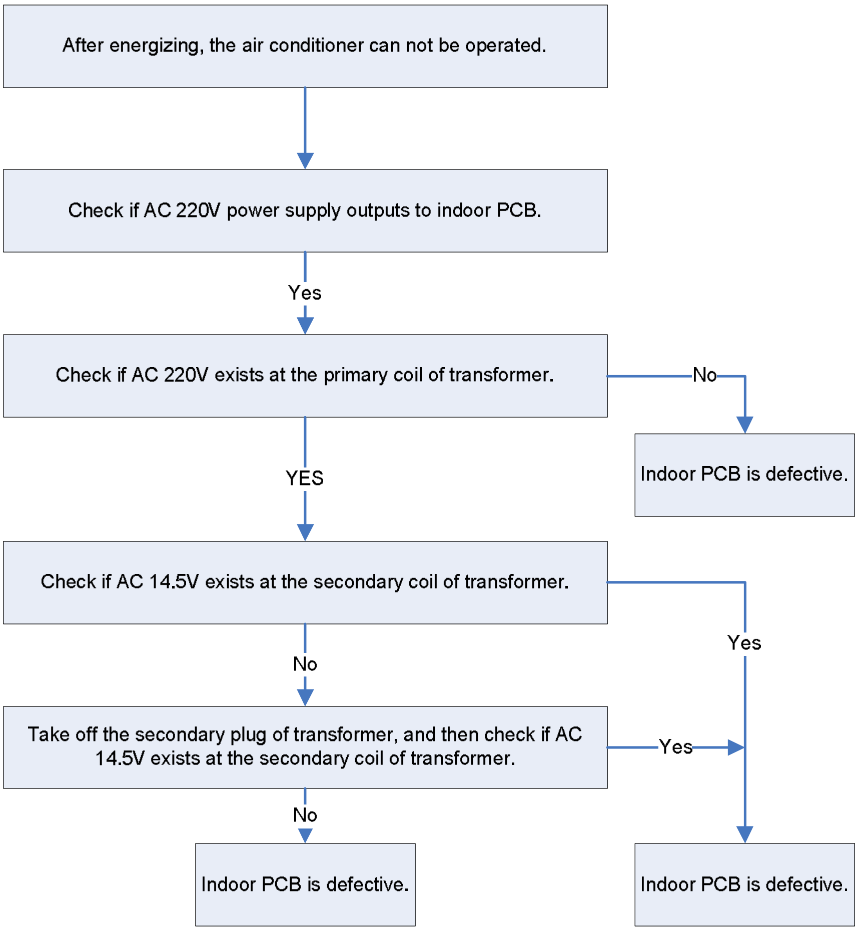
Failure phenomenon	**Operation lamp**	**Timer lamp**	**Defrosting lamp**
Over current protection of the compressor occurs 4 times	☆	X	☆
Indoor fan speed has been out of control for over 1 minute	X	☆	☆
No over-zero signal	☆	☆	☆
Temp. sensor on indoor evaporator is open circuit or short circuit	X	X	☆
Indoor room temp. sensor is open circuit or short circuit	X	☆	X
EEROM error	On	☆	X

r Extinguish

☆ Flash at 5Hz

12.3 Diagnostic chart

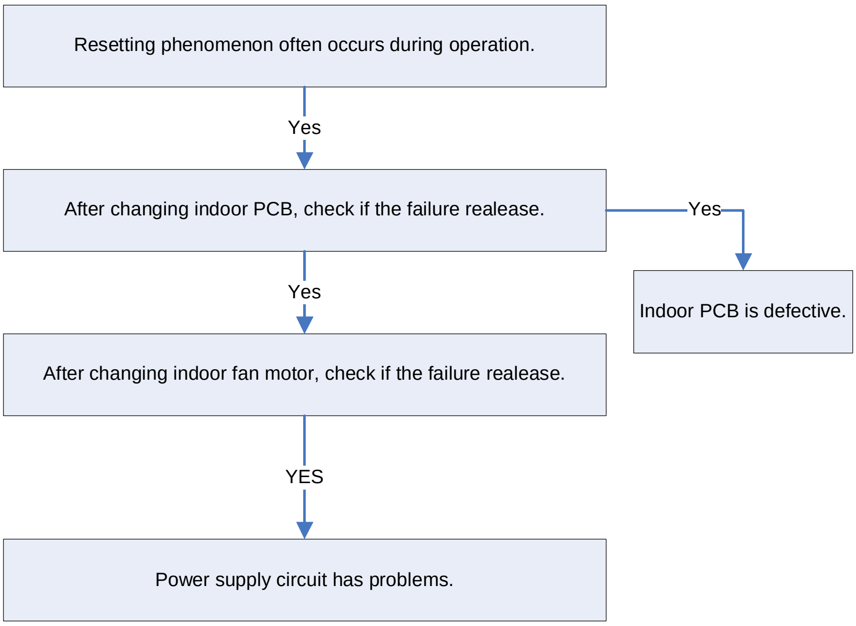
After energizing, no indicator is lighted and the air conditioner can't be operated.



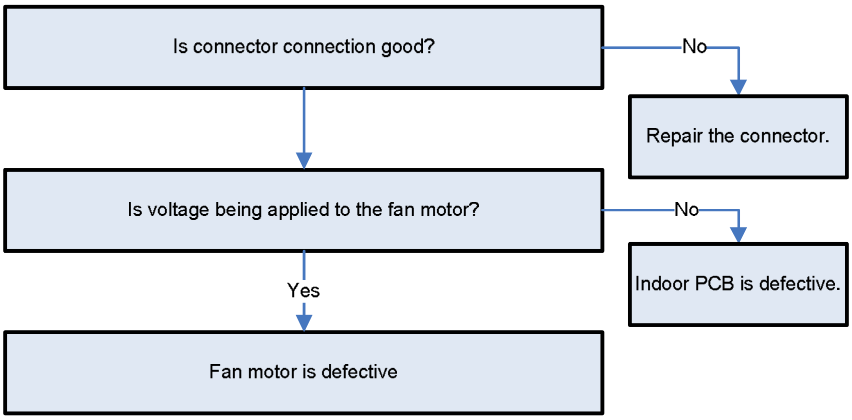
12.4 Resetting phenomenon often occurs during operation.

(That is automatically entering to the status when power is on.)

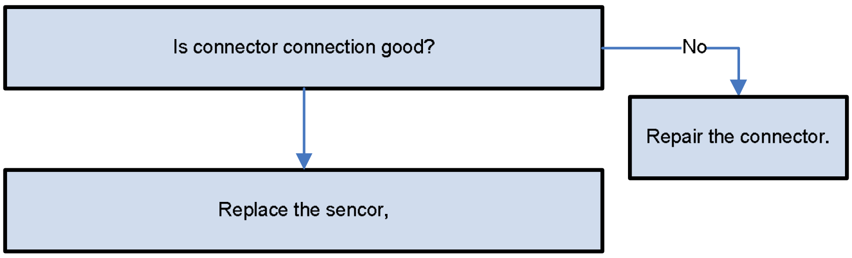
The reason is that the instantaneous voltage of main chip is less than 4.5V. Check according to the following procedure:



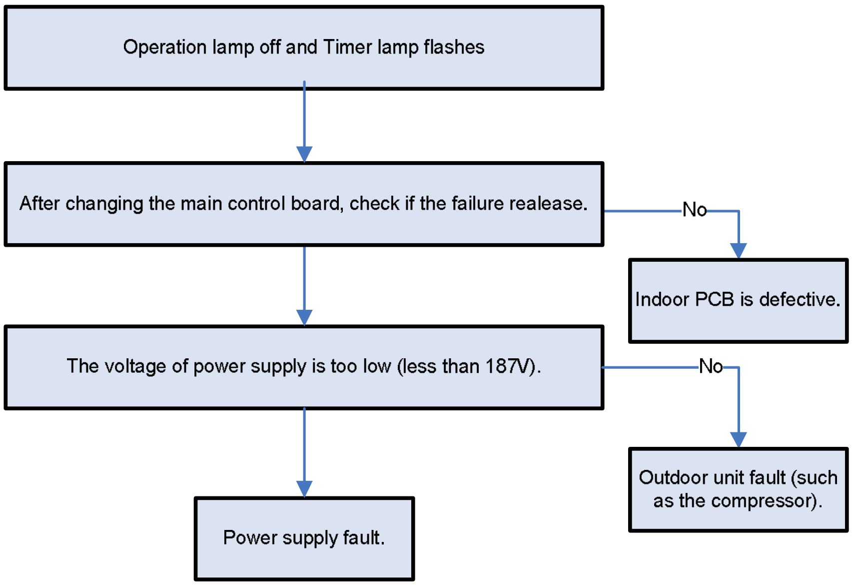
12.5 Operation lamp flashes and Timer lamp off.



12.6 Operation lamp flashes and Timer lamp on.



12.7 Operation lamp off and Timer lamp flashes



12.8 Operation lamp on and Timer lamp flashes

EEROM error, indoor PCB is defective.

12.9 Operation lamp flashes, Timer lamp flashes .

This is alarm signal when the main chip can’t detect over-zero signal. When such failure occurs, the main control board must have fault.

13. Characteristic of temperature sensor

Temp.℃	Resistance KΩ	Temp.℃	Resistance KΩ	Temp.℃	Resistance KΩ
-10	62.2756	17	14.6181	44	4.3874
-9	58.7079	18	13.918	45	4.2126
-8	56.3694	19	13.2631	46	4.0459
-7	52.2438	20	12.6431	47	3.8867
-6	49.3161	21	12.0561	48	3.7348
-5	46.5725	22	11.5	49	3.5896
-4	44	23	10.9731	50	3.451
-3	41.5878	24	10.4736	51	3.3185
-2	39.8239	25	10	52	3.1918
-1	37.1988	26	9.5507	53	3.0707
0	35.2024	27	9.1245	54	2.959
1	33.3269	28	8.7198	55	2.8442
2	31.5635	29	8.3357	56	2.7382
3	29.9058	30	7.9708	57	2.6368
4	28.3459	31	7.6241	58	2.5397
5	26.8778	32	7.2946	59	2.4468
6	25.4954	33	6.9814	60	2.3577
7	24.1932	34	6.6835	61	2.2725
8	22.5662	35	6.4002	62	2.1907
9	21.8094	36	6.1306	63	2.1124
10	20.7184	37	5.8736	64	2.0373
11	19.6891	38	5.6296	65	1.9653
12	18.7177	39	5.3969	66	1.8963
13	17.8005	40	5.1752	67	1.83
14	16.9341	41	4.9639	68	1.7665
15	16.1156	42	4.7625	69	1.7055
16	15.3418	43	4.5705	70	1.6469